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RURAL LINES • USA

The Story of Cooperative Rural Electrification



Rural Electrification Administration
U.S. Department of Agriculture
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Revised March 1966

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The Story of Cooperative Rural Electrification

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Issued March 1966

Note: This is the story of REA's electric loan program. The story of REA's telephone loan program was published on the occasion of its Tenth Anniversary in the October 1959 issue of RURAL LINES, at that time the agency's monthly magazine for borrowers. Single copies of this issue are available on request, from Information Services Division, Rural Electrification Administration, U.S. Department of Agriculture, Washington, D.C. 20250.



Foreword from the Administrator

THIS revised edition of *Rural Lines-USA* tells the story of the origin and development of one of the most successful programs ever undertaken by the Federal Government and the people of this country to meet a great social and economic need.

The men and women who organized the rural electric cooperatives do not need to be told how the program began; they lived it. But a new generation of rural Americans has come of age since rural electrification began in the mid-1930's, and hundreds of thousands of nonfarm people, many of them with no experience with co-ops, have been added to rural lines. It is the purpose of this book, published in REA's 30th year, to tell these new consumers about the program they have inherited and to describe their role in maintaining the security and effectiveness of their cooperatives in the years to come.

Despite 30 years of progress, the basic objective of the program still has not been achieved. As President Johnson has pointed out, the "objective of the REA program throughout its existence has been to achieve parity of electric service and costs between city and country." It will be up to this new generation of members to attain this goal.

We hope also that this book will prove of value to those researchers, businessmen, and educators, both in this country and abroad, who write REA each year for information about the development of rural electrification. Lessons learned in the United States already are being applied in a number of developing nations.

A handwritten signature in cursive script, reading 'Norman M. Clapp'.

NORMAN M. CLAPP.



Before REA, canning corn was a slow, backbreaking job for many farm families.

1. THE EARLY YEARS

Since its creation in 1935, the Rural Electrification Administration has helped bring electric light and power to practically every corner of rural America, raising the proportion of electrified farms in the United States from less than 11 percent to more than 98 percent. Through REA loans, the agency's 1,104 borrowers have succeeded in furnishing central station electric service to slightly more than half of the Nation's 3.4 million electrified farms, and their good example frequently has spurred other suppliers to serve the rest. REA borrowers also supply electricity to more than 3 million nonfarm rural establishments, including residences, businesses, schools and churches, and they continue to meet the rising demand for power by all their consumers, while seeking ways to lower the cost of that power.

This record of service is being accomplished by systems that are designed to serve whole rural areas, including the sparsely populated sections as well as the more densely settled areas. The job is being done through a program of self-liquidating loans. During 1964, principal and interest payments to the Govern-

ment by REA-financed electric systems passed the \$2 billion mark.

Most of rural America had remained dark during the 53-year period between 1882, when Thomas A. Edison built the first central station electric system in lower Manhattan, and 1935, when REA was created.

The notion that electricity generated at a central station could be distributed to every farm in the United States took hold of men's minds slowly. Engineers knew how to do the job as early as 1915, when they learned to transmit power as far as 100 miles. Since most U.S. farmers were then living within 100 miles of a generating station, large-scale rural electrification—for lighting, at least—was technically possible from that time on. For the next 20 years, however, most people connected with the electric power industry in this country doubted that rural electrification would pay its way.

In the early 1920's, however, a growing number of rural leaders and others were demanding rural electrification. In response, the National Electric Light Association in 1923 organized the Committee on the

Relation of Electricity to Agriculture (CREA), to see what could be done for the U.S. farmer. CREA, largely financed by the electric power industry, combined farm groups, Government agencies, and equipment manufacturers to study the uses of electricity on the farm and determine whether a profitable rural market existed.

CREA's most important study took place near the town of Red Wing, Minn., where a 6-mile electric line was built to serve 20 farms. Ten of the farmhouses were equipped with practically every piece of electric equipment then invented. Electricity also was installed in barns, poultry houses, and milk sheds. Electric motors cut wood and dried hay.

It wasn't long before the 10 farmers with central station electric service could report that their life was happier and healthier. Something else important was happening, too. Electricity was raising the whole level of rural living. As their electric bills went up, the Red Wing farmers checked and found that their operating costs were going down. Soon, state electrification committees were formed to spread the news and to show other farmers how to put electricity to work.

The chief problem, however, remained one of getting electricity at a cost that would permit farmers and other rural people to put it to work. Some electric companies were willing to extend service to rural consumers, but the price usually was prohibitive. As a rule, farmers had to pay from \$2,000 to \$3,000 per mile for construction of the lines to their homesteads. Then, on top of these heavy construction costs, rural people usually had to pay more for the electricity they used than did their neighbors in the city.

One man deeply concerned about the high cost of rural electric service was Morris L. Cooke, an electrical engineer. He set out "once and for all" to solve the puzzle of the true cost of distributing electricity in rural areas. As an adviser to the Power Authority of the State of New York, he and a small staff of engineers started from scratch, adding up labor and material costs. Published in 1933, their findings showed that it was possible to build rural lines from \$300 to \$1,500 cheaper per mile than power companies claimed they could be built.

But it was evident to many, including President Franklin D. Roosevelt, that rural people in 1935 would not get central station electric service at rates they could afford to pay without the Federal Government's lending a hand.

As a result, the Rural Electrification Administration was created by Executive Order of the President on May 11, 1935. The order, numbered 7037, was less

than two pages long, and it granted powers to an REA Administrator to "initiate, formulate, administer, and supervise a program of approved projects with respect to the generation, transmission, and distribution of electric energy in rural areas."

On May 20, 1935, Morris L. Cooke was appointed first REA Administrator, and he opened an office the following day. Within a week, he had assembled a small staff, and within a fortnight, he had moved his fledgling agency to 2000 Massachusetts Avenue in Washington, D.C., the former residence of James G. Blaine and of George Westinghouse, Jr.

The agency was begun as part of a general program of unemployment relief under authority of the new Emergency Relief Appropriation Act, with \$100 million in funds for either loans or grants. Cooke insisted, however, that REA would have to be a loan agency, and it would have to be free to use skilled labor where it could find it, as opposed to providing employment for the unskilled.

On August 7, 1935, the President issued Regulation No. 4 establishing REA as a lending agency, freeing it from many relief program regulations, and broadening the Administrator's authority to make decisions.

Regulation 4 transformed REA from an emergency relief agency into something more closely resembling a bank. It created an orderly program of loans on an interest-bearing, self-liquidating basis. It made rural electrification a national business investment.

REA's first year proved a frustrating one. If Cooke had expected a flood of applications from electric companies, he was disappointed. The few applications that did come in from power companies proposed such high rural rates that Cooke felt he could not seriously consider them. His first four loans went, not to commercial companies, but to three electric cooperatives and one municipality.

His disappointment increased when he read a report of a special committee of the utility industry on rural electrification, which stated that "there are very few farms requiring electricity for major farm purposes that are not now served." At that time 89 percent of all farms in the United States still were without central station electric service.

Later, Cooke observed that "before December (1935) . . . it became apparent that the industry was not going to use even a substantial portion of the funds available for rural electrification, and farm organizations of a cooperative character forged to the front as the principal borrowers under the REA program."

It was the feeling of many in Congress and of many local farm leaders that rural people not only needed

John McGuffin, a New Mexico cattle rancher, and his wife were the five-millionth REA-financed consumer. They had lived on their farm without modern conveniences for 21 years before receiving electricity for the first time in 1962.



electric service, but needed that service under rates and conditions comparable to those available in towns and cities. They felt that electricity was too important to the development of rural America to make rural people wait for the commercial electric companies to take on the job, and they saw in nonprofit, cooperative organizations one means of accomplishing their objective.

As a result, early in 1936, companion bills were introduced in Congress directing the REA Administrator to give preference in making loans to “States, Territories, and subdivisions and agencies thereof, municipalities, people’s utility districts, and cooperative, nonprofit, or limited-dividend associations.”

The REA bill was introduced in the Senate by Senator George W. Norris of Nebraska and in the House of Representatives by Representative Sam Rayburn of Texas, later Speaker of the House. It was largely due to their hard work and to the support of farmers and their organizations, that Congress passed the bill which was signed by President Franklin D. Roosevelt on May 20, 1936. Rayburn, many years later, described rural electrification as “the biggest lift that farmers ever had.”

The Rural Electrification Act of 1936 reestablished REA as a lending agency for 10 years and granted a clear preference to nonprofit organizations.

- It authorized \$40 million annually to be apportioned as loans among the States.
- It stated that loans could be made for the purpose of financing the construction and operation of generating plants, transmission lines, and distribution lines for the furnishing of electric energy to persons in rural areas who were not receiving central station service.
- It defined “rural area” as any area of the United States not included within the boundaries of any city, village, or borough having a population in excess of 1,500, including both the farm and nonfarm population thereof.
- It permitted loans to extend over a period of 25 years.
- It geared interest on the loans to the rate paid by the Government on its own long-term securities.
- It provided that loans also could be made to finance



Familiar REA sign, used in the early days of the program, let local people know of new projects.



home wiring and to purchase electric appliances, equipment, and plumbing.

- It provided for an Administrator, appointed by the President and confirmed by the Senate, for a term of 10 years.
- It required the Administrator to certify that in his judgment the security for each loan he approved was reasonably adequate and that the loan could be repaid within the time agreed upon.
- It required that REA be administered on a non-partisan basis.

With passage of that act, the major decisions concerning rural electrification had been made. The way was cleared for action and action came quickly.

Electricity revolutionized rural schools, bringing better attendance, fewer colds, higher grades, indoor plumbing and new draft-free classrooms.

2. THE FORMATIVE YEARS

By 1937 REA policy was clearly outlined; Administrator Cooke had been an architect of that policy. John M. Carmody, who succeeded him as Administrator in February 1937, was an architect of method. A former coal company manager and magazine editor, Carmody was an apostle of the comparatively new discipline of "scientific management."

One of Carmody's first moves was to make it clear that rural people must take the initiative in getting electricity for their communities. Most farmers had no idea how to go about buying "a package of electricity." When farm people wanted to become eligible for a loan for the construction of their own electrical system, they first had to incorporate and organize under the laws of their State. Next, they had to show REA that their project could operate successfully and that they could repay the Government loan—with interest—within the required period.

To do these things, the farmers had to retain an attorney. They had to elect directors and officers. They had to sign up prospective members, a number of whom were not quite sold on the benefits of electricity. The system had to be designed by engineers.

As if these obstacles were not enough, there were major legal barriers in many States. While there were no laws in most States which specifically prevented rural electric cooperatives from forming, neither were there laws which permitted them. Electric utilities, on the other hand, operated under a well-established body of laws and under the supervision of State regulatory commissions.

In 1937, therefore, the REA legal staff drafted a model law for States called the Electric Cooperative Corporation Act. This uniform act was designed to give the co-ops ample powers to organize and build. It specifically exempted them from regulation by State commissions, since consumer-owned organizations are self-regulating. In one State after another, rural people sought sponsors for similar legislation, and by

1940, a total of 23 States had given the green light to rural electric cooperatives.

But the basic question of the right of electric co-ops to organize was but one of thousands of questions which were tossed in the laps of REA attorneys during the formative years. One lawyer remarked years later that if he had known of the legal jungle which lay ahead of him, he would never have joined the agency. By the end of 1938, members of the REA legal staff had written more than 900 opinions.

As a result of the pronounced need for help, REA decided to give local guidance to prospective REA borrowers. The Administrator added to his staff a number of people equipped to go into the field to show farmers how to organize and design their projects. Soon REA had assembled staffs for engineering, legal problems, electric utilization, and management advice. The number of employees on the REA payroll climbed fast, rising from 99 in 1935 to 788 in 1939. The number of loan approvals was climbing, too. At the end of 1938, a total of \$88 million in loans had been approved. A year later, the total had jumped to \$227 million. The young agency was on its way.

As with most new ventures, the hard work of organizing the rural electric cooperatives generally fell to a handful of local leaders. These energetic few had to sell the co-op idea, organize meetings, collect the initial fees, sign up potential consumers and contact REA for specifics on the program. These leaders usually worked without pay. Said one: "Many times my wife drove the tractor while I stopped to talk to a bunch of farmers about REA."

The story of a co-op in a western State is fairly typical. In 1939, 10 men met to see what could be done to get electricity to their ranches. As a starter, they ran an advertisement in the county paper, inviting "all who want electricity" to a meeting the following week at the courthouse. They also wrote REA and asked that



Co-op organizers worked closely with farmers and other rural people in choosing routes for power lines.

a Government representative be present at the meeting to answer questions.

So many people turned out for that first gathering that the organizers had to move to the local auditorium. The REA representative said that the first job was to sign up prospective members—at \$5 per consumer. If the organizers could sign up as many as three members to the mile, REA was likely to approve a loan to build a distribution system.

The first meeting brought a stampede of applicants for electricity, but it was only the beginning. More meetings followed, sometimes one every night. Finally one winter evening, the 10 men gathered around a kitchen table, spread out county road maps, and began to “plot in” the homes of the people who had already signed up. Then they drew lines where they thought the wires could be strung, picking up as many new members as possible. When they had a general idea of where they were going, they split into teams of two men each to call personally on those farmers along the way who had not yet joined the co-op.

Despite years of talk about rural electrification, rural people were not universal in their demand for electricity. Some still worried about “getting in debt to the

Government.” A few were not sure that electricity was worth the expense. And in the thirties, \$5 was not a sum to be taken lightly. A South Carolinian who helped organize a cooperative in Williamsburg County remembers a time when it “was hard to get hold of \$5 because \$5 looked as big as a tabletop in 1939.” In his drive for members he sometimes had to take \$2 cash and a note for the other \$3.

The sign-up teams got wiser as they went along. They found out that it was better to have the farmer’s wife present when they talked about the benefits of electricity. They looked at her when they talked about lights to help the children study or when they described electric refrigeration. Often the housewife would pay the sign-up fee before the organizers had finished arguing with her husband.

When the sign-up campaign was completed, preliminary plans and tabulations were sent to REA for consideration. With REA’s approval of the loan, an engineer was hired to begin construction plans.

Then the easement campaign began. At the outset of the electric program, REA had decided not to approve use of loan funds to purchase rights-of-way from members, feeling that payment would be inconsistent



Co-op organizers found many struggling farm families worried lest the cost of electricity outweigh its benefits.

with the idea of member-owned cooperatives. As a result, cooperatives had to obtain thousands of easements across property, each one signed by the property owner. Some idea of the size of the task is indicated by the fact that co-ops had collected more than one million separate easements by 1941.

The job would have been difficult enough had all the farmers been agreeable, but many were not. As in the sign-up drive, they had to be sold individually. A number of rural people still had the idea that in signing an easement, they were mortgaging their property to the U.S. Treasury.

In some cases, easement solicitors had to exercise patience above and beyond the call of duty. In one co-op area, repeated calls on a property owner had failed to secure his signature. He didn't want electric service himself, and he was suspicious of the Government, the cooperative, and everyone connected with the project. To route the line around his property, however, meant hundreds of dollars wasted.

As a last resort, the REA field engineer called on the man, and found him nursing a swollen jaw. A tooth was "killing" him, but he had no way to get to a dentist.

The engineer drove the suffering man to town, waited until the tooth was pulled, and took him home again. Hours later, the farmer got around to asking his visitor what he wanted. The engineer explained, the farmer listened carefully for the first time, and finally understood what was being asked of him. The lines went through the following day.

On the other side of the coin was the unhappy fact that many farmers who wanted electricity could not be included in the first systems built. They were too far from the main line, or they lived in areas where not enough neighbors had signed up. Area coverage was a goal in those early days, but co-ops also had to repay their debts. A line had to pay its way or it couldn't be built.

One Georgia farmer who tried to join his local cooperative for \$5 was told that his home was too far from the electric line. If he wanted electricity, he would have to pay \$165 for a line extension.

A week later he returned, still waving his \$5.

"I moved my house," he explained in triumph. It had cost him \$50 to prepare a new foundation, roll his house across the fields, and set it up a few feet from the line.

3. MILE BY MILE



Crew stringing line covered several miles a day. A crew followed to take the line up to the top of the poles.

REA engineers were faced with several problems in expanding rural electrification after 1935. There was, first of all, a need for maximum economy in construction. Rural people were in no position to pay the bill for constructing lines that were as heavy and expensive as those built in town.

From the beginning, therefore, REA engineers concentrated on finding new and cheaper ways to build rural lines that were both simple and sturdy. Their research was enormously successful. The cost of building rural lines before REA had been between \$1,500 and \$2,000 per mile of line. By the end of 1936, nine projects had been built in as many States at an average cost of only \$941 per mile of line. By 1939, REA borrowers were building lines for an average of less than \$825 per mile.

Construction costs were cut by the use of high-strength conductors, which permitted longer spans and cut the number of poles needed per mile from about 30 to 18. The use of vertical construction, as opposed to the familiar cross-arm on single-phase lines, and standardization of much of the equipment used also were important cost-cutters.

For the construction itself, REA applied its own version of the moving belt principle, which had proved

so successful in the automobile industry. Instead of using a stationary crew beside a moving assembly line, construction engineers moved waves of highly specialized workmen along the rural roadway.

There was little money to invest in elaborate surveys. In more than one instance, borrowers picked up automobile tour maps from local filling stations and used these to lay out systems.

Guided by his road map, the driver of the staking team would move slowly along the route for the new electric line. A boy in the back of the truck, equipped with a 300-foot rope and a pile of wooden stakes, would throw a stake every 300 feet and haul in his rope for the next run.

Behind came a man who drove the stakes, the crew to dig holes and the equipment crew, which determined what type of pole and assembly to drop off at each hole.

Still another crew attached brackets, bolts and insulators to the pole. They were followed by men who set and guyed the pole where necessary.

Wire stringing was a separate function, and more

Installing power lines to serve new consumers in isolated areas is a continuing job for REA borrowers today.



crews came along to hang transformers and install meters and service wires.

On a good day, it was not unusual for a contractor to build 3 miles of line per crew. One contractor on a 75-mile project reported a rate of about 4½ miles per day.

Beyond the emphasis on standardization, there was plenty of individual ingenuity. One resourceful contractor found it impossible to drive his pole truck back into the muddy fields where the line was supposed to go. So he hitched a trailer to his truck and hauled a mule in it. When his crew hit mud, they unloaded the mule and let it drag the pole into position.

Construction had its dramatic moments. One rainy night in Indiana, a woman lay dying of pneumonia in her farmhouse. The doctor said that an oxygen tent might save her, but there was no electricity in the house to operate the fan in the tent. Working in the storm, three linemen built a 500-foot extension from the co-op line in just 2 hours. The switch was turned in time; the woman's life was saved.

As rural line construction proceeded at a faster and faster pace, private utility companies were spurred by the example of the cooperatives to build their own lines in rural areas. In some cases, this new building led to bitter feelings between co-ops and commercial companies. Frequently, commercial construction took the form of "spite lines"—lines built almost overnight after a cooperative was organized and which sometimes paralleled the proposed co-op lines, even blocked them.

At REA in Washington, there was less worry about power companies' lines than about the quality of lines REA engineers designed. As building went on, they waited with some apprehension for a real test of their innovations.

The acid test of rural line construction is its ability to withstand natural hazards like ice storms, windstorms, and lightning. Conditions such as these demanded the adoption of the best techniques that had been developed by the electric and manufacturing industries. In the winter of 1938 in eastern Iowa, REA-financed systems received a strenuous test. The heaviest sleet storm in the records of the local Weather Bureau struck without warning. It brought down more than 5,000 telephone poles and caused over 200,000 wire breaks in telephone lines. On REA-financed electric lines, however, only 200 breaks occurred and only one pole broke off. Some 17 miles of poles came down without breaking and were easily re-erected. REA's recommended lightweight construction was vindicated.

The \$5 the farmer paid to join the co-op was but a down payment on electricity for his farm. After con-



REA borrowers serve under severe handicaps, including low consumer density and revenue per mile of line.

struction of lines to his property he still had to wire his house and barn to receive electricity and buy lighting fixtures, appliances and equipment to make use of it.

Like construction costs for the lines, the average price for wiring a farm—although only \$70—was a substantial sum to the farmer. REA realized that the cost of wiring would possibly keep many rural people from taking electricity. As a result REA created a "group wiring plan", which cut home wiring costs to about \$55. Meetings were held in each project area to explain to farmers why they should complete installation as soon as possible.

Group plans were also developed for plumbing installations; light manufacturers, acting in cooperation with REA, put out "lighting packages" containing fixtures for a six-room house at a price that seemed unbelievably low. Each package contained nine modern fixtures and cost about \$18.

These plans paid off. In 1938, the superintendent of a Michigan electric project wrote REA: "If you were here, I could take you to hundreds of homes completely wired, with fixtures hung and bulbs in place, ready for the 'zero hour' when the lines will first be energized. I could take you to homes where electric ranges, electric refrigerators, radios, and even electric clocks are installed and ready to operate."

4. AFTER THE LIGHTS CAME ON

It is next to impossible for people who have grown up with electric lights to imagine the deep emotion felt by rural families when their homes were first electrified.

But a dairy farmer in Kentucky well remembers that day, and his experience was the experience of several million families across the Nation.

"We kept a lantern hanging beside the kitchen door," he relates. "Winter mornings I'd take that lantern and head for the barn. It would be so dark out you'd think you were in a box with the lid shut. We always had at least a dozen cows to milk, and just my dad and me to do it.

"I had a lot of other chores to do before I went to school . . . that made me late to school some mornings. I'd fill the wood box beside the kitchen stove and I'd bring in a bucket of water. Sometimes the pump would be frozen solid and I'd have to thaw it out before I could pump the water.

"Soon as I'd get home from school I had more chores to do, and then an early supper, and after that I'd get at my homework. I'd study by a kerosene lamp in the kitchen, up close to the stove. We all spent most of our time in the kitchen during the winter.

"We'd heard that the Government was going to lend us money to get lights, but we didn't believe it until we saw the men putting up the poles. Every day they came closer, and we realized it really was going to happen. So Dad went ahead and had the house wired.



After lights, the radio was the most wanted appliance in most farm homes. It spelled an end to isolation.

"It was almost 2 months later before they finished the job and turned on the power. I'll never forget that day—it was late on a November afternoon, just before dark. All we had was wires hanging down from the ceiling in every room, with bare bulbs on the end. Dad turned on the one in the kitchen first, and he just stood there, holding onto the pull-chain. He said to me, 'Carl, come here and hang onto this so I can turn on the light in the sitting room.'

"I knew he didn't have to do that and I told him to stop holding it, that it would stay on. He finally let go, and then looked kind of foolish."

That night—"the night the lights came on"—was forever after a significant date to most farm families, ranking with marriages and births as an anniversary of importance. In countless homes, lights remained on all night long, with people getting a good look at the rooms—and at each other.

At a crossroads in Texas, the night the lines were energized, ranchers filed past a newly dug "grave," hurling their kerosene lamps into the pit as a sign of their deliverance.



Few farmers mourned the passing of the kerosene lamp.

In a small farmhouse in Missouri, a woman ignored the lamps which suddenly burst into brilliance, and ran instead to the kitchen, where her new refrigerator had stood for a month awaiting current. When she saw that the little light inside really came on, she burst into tears of relief.

At a general store in Georgia, the storekeeper boasted of his new electric light for a month before discovering that it was only the night light over his cash register. When a co-op man showed him how to turn on the rest of his lights, he was speechless with amazement.

One woman, over 100 years old, wrote REA to thank the Government. She had never felt that she had been born too soon, she said, until the night the lights came on. Now she regretted that she would see so little of the future.

"To my mind, the coming of electricity began a new kind of life for most of us," explained a retired South Carolina schoolteacher recently.

"It meant much more than gadgets and appliances. Tenant children used to quit school in the third grade. Now they go through high school, and many finish college. It all happened after the lines came through."

She remembers a tragic grade school fire which took at least 100 lives in 1926. It began when a child knocked over a kerosene lamp during a lodge meeting in the second floor of the school. The people piled down the one narrow curved staircase, smothering and trampling one another.

The replacement of the coal oil lamp by electricity changed rural education, in fact, it changed many facets of life in the rural community. Rural people were now offered, in one significant respect, equality of opportunity with city people.

The coming of electricity meant the emancipation of the farmer's wife. As a rule, she put electricity to work before her husband did, and the first appliance she bought was an electric iron. Young farm women today are not aware of the origin of the word *iron*, as they press clothes with lightweight appliances of aluminum or hollow stainless steel. But their mothers and grandmothers know that iron meant just that—a 6-pound wedge of cast iron that had to be heated on a wood range and handled with a pot holder. A housewife had three or four of them, so that several could be heating while one was working. It is little wonder that an electric iron was first on the shopping list of every woman after the lights came.

A close second to the iron in popularity was the radio. It meant the end of the farmer's isolation from the company of his fellow creatures. It meant the end of loneliness. A whole new world opened to the rural family.

For the first time a farmer in Illinois heard the market report—and a rancher in Texas heard the newscast. Now a Gulf Coast family could get hurricane warnings.

"The day we got our radio," wrote one farm wife, "we put it in the kitchen window, aimed it out at the fields, and turned it on full blast. During the first week, the men hated to be out of the sound of it."

When the cooperatives were first organized, many directors wondered how on earth farmers were going to use all the electricity that the lines were built to carry. But their apprehensions were short-lived. Within 12 months after one project was energized, a survey disclosed the following purchases of appliances by members:

Electric irons and radios—84.3 percent.

Washing machines—63.2 percent.

Vacuum cleaners—48.2 percent.

Toasters—35.5 percent.

Electric motors—27.1 percent.

Refrigerators—20 percent.

Electric water pumps—16.2 percent.

Not all rural people, however, felt at ease with their



Crews carefully located new poles. This pole does not block gate and will not strike house if wind knocks it down.

new servant. After all, electricity was the same stuff as lightning; it sounded dangerous to many who had had no experience using it. One woman in Kentucky kept a new electric iron for weeks before she dared use it. Her neighbor always used a pot holder to turn on her electric switches. Another kept sockets plugged at all times for fear the electricity would leak out. And one housewife wrote the REA Administrator to find out how to turn off her bedroom light at night. Nobody

had bothered to tell her that she had a switch.

For the new cooperatives, these stories had their serious side. When a co-op depended on building electric load to repay its Government loan, it was no laughing matter that even a few people were too afraid of electricity to use it. And with still others, it wasn't a question of fear, but of habit. They were used to doing things the old way.

The co-ops knew from the start that they had a task



Every member of the family benefits from modern electrification in every room of the rural home.

A Guiding Policy

The objectives of the REA program, as set forth in a policy bulletin on September 2, 1965, are "to provide, through self-liquidating loans . . . and through technical assistance, adequate, dependable electric and telephone service on an area coverage basis to beneficiaries of (the Rural Electrification) Act, both farm and nonfarm, in rural areas under rates and conditions comparable to those available

in neighboring urban communities."

The bulletin states that "REA activities will be carried on . . . to develop the ability of borrowers to handle their own affairs effectively," and that "REA will assist borrowers to develop the basic strength necessary to accomplish program objectives and to assure their future security and permanence. As this basic strength is developed, the need for Federal assistance will diminish accordingly."



Typical of the cooperative spirit, most co-op members read their own meters and even compute their own bills.

of education on their hands. Families asked their co-operatives for advice, and the co-ops often turned to REA.

In 1935, REA had employed two women to plan a program to teach the use of electricity, and in 1936, the agency published leaflets to answer questions on the cost of lighting and operating various appliances. These were distributed through the cooperatives.

Before long, it was evident that the printed word alone wouldn't do the job. REA expanded its utilization division, and sent six teams of specialists into the field to work with co-ops in showing members how to use electricity. The teams were on the road for months at a time, holding meetings in homes, schoolhouses, and co-op offices.

REA organized the Demonstration Farm Equipment Tour, or "REA circus," in 1938, and put on shows in 20 States. Under a tent seating 1,000 people, REA employees, county agents, and extension specialists of State agricultural colleges demonstrated the proper use of farm equipment and household appliances.

An enterprising Kentucky pullet had her own "ideas" about the proper use of electricity. Inspired by her

newly lighted chickenhouse, she laid an egg shaped like a miniature light bulb.

The press was delighted; the egg was mentioned in a nationwide radio broadcast; months later, REA received clippings of stories about the egg from newspapers in Sweden and Spain. Still later, it wound up at the New York World's Fair in 1939.

The editors who liked that story so much knew it concerned more than a pullet and a bulb-shaped egg. They sensed that something big and new was happening to American agriculture, and they were right. Electricity was the biggest thing that had happened to rural life since the arrival of the Model T.

While the women were experimenting with electricity in the kitchen, the men and boys were trying it out in the barn. The farmer was quick to prove that he was a bigger potential user of power than his neighbor in the city, who had enjoyed the benefits of electricity for many years. Little by little, electricity began to take over the chores. It could milk cows, pump water, warm pigs, hatch eggs, brood chicks, sharpen tools, and drill holes. Electricity was a hired hand that paid for its own keep.

Frequently, farm boys were quicker to apply electricity to new jobs than their fathers. They were not so used to doing things in a certain way. Many boys took on electrified farming experiments as 4-H or Future Farmers of America projects, and they kept books to prove how electricity could be used for greater production and profit. They learned to use power machinery in high school and they saw to it that similar tools were installed in the farm shop at home. They suspected that the success of a farmer would someday depend considerably on his ability to put machines to work for him.

The name of the program, however, was not "farm" electrification, but "rural" electrification. Within a short time the meaning of that "rural" became clear. Electricity changed everything it touched in rural America.

Electricity made a difference in country schools all across the Nation. Teachers and principals reported that pupils' grades improved remarkably after lines were energized. Both better lighting and the influence of radio were credited with improving scholarship. Students were cleaner, too. At one school, they used five times as much liquid soap a year after running water was installed inside the schoolhouse.

Every community, every co-op, had its own stories about the way members were putting electricity to work. It was the beginning of a revolution in rural America that is still going on.

At first it appeared that the typical electric cooperative had two strikes against it, but it turned out in the long run to be an enormously successful organization. Behind that success was an intangible that doesn't show on the balance sheet—enthusiasm. The consumers, the directors, and the co-op employees were sold on electricity. They had waited a long time to get it, and they weren't going to give it up.

To one farmer it meant that his sons possibly would make farming a career, something they had never considered before electricity.

"Today," he said, "the boys are talking about going to the agricultural college and making big plans for the farm. I would never have believed electricity could do that."

Consumer enthusiasm showed up in many ways. One thing was that people paid their bills ahead of time. At harvest, thousands of farmers deposited from \$30 to \$60 with the local co-op against future billings.

One cooperative, short of employees, had trouble keeping track of all the money and had to write members that "it would convenience us greatly if bills were not paid at the office until statements are received."

Most cooperatives let members read their own meters and, in some cases, figure their own bills. Almost

everyone was scrupulously honest. One farmer whose meter was damaged by lightning was told to pay a bill of \$5, the same as his previous month's bill. He sent in \$10 instead.

"I'm sure I used at least that much current this month," he said.

Self-billing, coupled with a watchful eye to spot trouble before outages occurred, helped hold operating and maintenance costs down.

By and large, local businessmen were enthusiastic about the new co-ops, too. Electrification boosted the economy of towns in rural areas. It brought new appliance stores and equipment dealers to Main Street. It created new jobs for the young people from farms. The co-op's payroll made a difference to merchants, too, for the cooperative was often the biggest business in town. A banker in Preston, Minn., confessed that the largest check ever written on his bank was for \$53,700 by the local cooperative to the contractor who built a portion of its lines. The \$90,000 Government check deposited by the co-op was the largest single deposit the bank had ever received.

Among the men whose spirit kept the cooperatives going were the managers. Qualifications for the job were severe.

What some managers lacked in experience and in training, they made up for in hard work and courage. Many of them set up cots at the office, brought hot plates, and lived on the job for years. They went sleepless during storms. Frequently, they drove their employees hard, but they took the toughest jobs for themselves. During a storm in Nevada, for example, lightning blew a fuse at the main disconnect switch on a transmission line. A flood that followed the storm washed out the only bridge in the area, so that the manager had to drive more than 200 miles over dangerous mountain roads to replace the fuse. It took him 10 hours at night to do it, but he was on the job the following morning.

Electricity had come to rural America to stay.

On July 1, 1939, REA ceased to be an independent agency and became a part of the U.S. Department of Agriculture. The change allowed REA to retain its administrative integrity, while placing its operations under the general supervision of the Secretary of Agriculture.

The electrification of rural America continued at an even faster pace. By 1940, loans totaled \$268 million, and in 1941, the agency had its biggest year up to that time, approving more than \$100 million in loans.

The war put a virtual halt to rural construction. It was getting hard to procure materials in 1941, and by 1942, systems required priorities to get things they

The Setup at REA

REA carries on its relations with borrowers through area offices, all of which have their headquarters in Washington, D.C. There are Northeast, Southeast, North Central, Southwest, and Western offices, each of which is headed by an area director. The area director and his staff process each loan application, prepare a recommendation, and submit it to the REA Administrator. The Administrator makes the decision on the loan.

REA maintains a Rural Areas Development staff which helps borrowers to encourage local business and recreation projects. The results are increased job opportunities and higher income levels for rural communities.

The Power Supply Division deals with power-type borrowers. It aids them in obtaining or generating adequate and reliable sources of power, so that REA-financed systems can be guaranteed a permanent and effective place in the American power industry.

REA maintains no field offices, although there are field representatives who maintain residences in various States. The services of these field people are available to REA borrowers at all times.



Few rural people will forget the look of their farm the first night electricity brightened the countryside.

needed. REA moved from Washington to St. Louis, Mo., to release office space in the Capital for agencies connected with the war effort.

But REA did not go out of business. It continued to examine applications and to earmark funds for projects. In January 1943, the War Production Board, which was responsible for the order of priorities, relaxed its restrictions somewhat so that rural people close to existing power lines could obtain extensions—if they could show that electricity would mean an increase in food production or a decrease in labor.

During the war years, American farmers broke one production record after another. Their output filled our own military and civilian requirements, plus part of the needs of our allies.

Rural electrification also meant that more plants and businesses—many supplied materials for the prosecution of the war—could be built in the country. The number of rural firms on REA lines tripled during World War II.

REA engineers concentrated on a number of wartime tasks. At the request of the military, they solved a problem of electrical interference of a submarine detector. Twenty-one REA technicians were assigned by the Signal Corps to assist in development of communications during construction of the Alcan Highway to Alaska.

Meanwhile, there were other developments. In 1942,

a number of REA borrowers organized their own trade association—the National Rural Electric Cooperative Association. It was a nonprofit, private organization, incorporated in the District of Columbia, and during World War II, its membership increased to include 549 rural electric systems financed by REA. Today, it claims 977 systems as members.

By 1942, a number of statewide organizations of REA borrowers also had been formed. Many other state groups have been formed since that time. In all States where REA borrowers are operating, systems have made arrangements for assisting one another following damage to lines by floods, storms or other disasters.

In 1944, Congress passed the Department of Agriculture Organic Act, familiarly known as the Pace Act. By this Act, the loan authorization authority of REA, which would have expired in 1946 without new legislation, was continued indefinitely. The Act also changed the rate of interest charged on outstanding and future REA loans to a flat 2 percent, abolishing the old interest formula based on the Government's cost of money. Previous interest rates had fluctuated from 2.46 percent to 3 percent. The Pace Act also extended the maximum amortization schedule on all REA loans from 25 years to 35 years.

Before the war many rural people had looked upon the REA program as a short-term affair. In the floor

Bylaws, Boards, and Barbecues

A rural electric cooperative is a private, nonprofit enterprise, locally owned and managed, and incorporated under State law. It is owned by the members it serves, and each member has one vote in the affairs of the cooperative, regardless of the amount of electricity he uses.

The by-laws of the typical cooperative call for a general meeting of the membership once a year to elect members of a board of directors and to report on co-op operations during the preceding year. While most co-ops keep members posted between meetings with newsletters, newspapers, and personal calls, the annual meeting is the one time each year when all members can get together to consider the affairs of the business enterprise they own.

Annual meetings have grown from small, informal sessions held in school auditoriums, court houses, and even garages, to big and frequently colorful occasions with an attendance of a thousand or more. One Iowa co-op attracts a crowd of 20,000 people to an all-day meeting, which includes a barbecue and professional entertainment.

In several States, associations of cooperatives have developed caravans to aid with individual annual meetings. Co-ops plan their meetings to fall in the same month, and the statewide association furnishes a tent and plenty of chairs, exhibits of new electrical merchandise, and even the entertainment. The caravan makes it possible for each co-op to stage a big meeting at comparatively low cost.

A number of cooperatives with large service areas hold district meetings prior to the annual meeting to permit election of a director from each community. Recently, cooperatives with a large membership of seasonal consumers have been holding separate meetings for these people in nearby cities.

Large or small, the annual meeting is an important occasion in the life of the cooperative, for it gives members a chance to air grievances, make changes in the board, offer suggestions, and even compliment the management. In both method and spirit, it most closely resembles that institution of democracy, the old New England town meeting.

Many cooperatives have adopted plans whereby any revenues in excess of expenses are capital and are assigned to the individuals on a patronage basis. They provide for retiring this capital as the boards of directors determine.

debate over the Pace Act, however, the Congress had made it clear that it intended for all of rural America to be electrified. Many felt that REA's basic objective must be to help make electricity available to all rural people under rates and conditions comparable to those available to town and city people. Congress was told what to expect in the way of applications, and the Congress responded. With the end of the war, the appropriation bills for 1946 and 1947 made available a total of \$550 million in loan authorizations.

Co-op directors and managers were finding out that it would take increasing amounts of capital to increase the capacity of the rural systems to serve consumers already on the lines, for farmers were using more and more electricity with each passing year.

In addition, nobody had to sell anybody on rural electrification. Veterans were returning home to the farm, and they had learned to take electricity for granted. They had had electric lights on battleships, in barracks in Texas, in tent cities in Hawaii. One young man who had begun shaving while in the service got back to his farm before he recalled that he couldn't use his electric razor in his unelectrified home.

The wartime slow-down in construction created a log-jam of applications for electricity. As a result, everybody in rural America demanded service and wanted it right away. At that time there were 2½ million farm families still living without electric light and power. By and large, the unserved people were in the thinner, less densely settled areas.

Electrifying these farms proved to be a tougher job than anyone had suspected. Manpower was scarce and so were materials. The REA staff had been cut considerably during the war, and trained technicians were hard to recruit. Poles were in short supply. Transformers, pole hardware, and other line construction components also were hard to get.

Not until the end of 1948, was the worst of it over. Construction then began to move full speed ahead. More than 40,000 consumers per month were being connected to REA-financed lines, far exceeding all pre-war records. By June 1949, more than 78 percent of the farms in this country were receiving central station electric service.

In the process, electric lines began to cross vast areas of the Nation which had not shared in early rural electrification. The first lights came on in farm homes in the Dakotas and on Montana ranches. In more thickly populated States, new construction picked up farms and stores that had missed electricity the first time around. Cooperatives hurried to make area coverage a reality.

5. ELECTRICITY . . .

NOW INDISPENSABLE

Not long ago men and animals furnished the only power for farm home and barnyard chores. Today, more than 500 of these chores are performed by electricity. The imaginative use of a heater, a switch, a

motor, a light bulb, or electrical appliance has taken away much of the drudgery that used to make farmers and their wives old before their time. Electricity enabled the farmer to break away from servitude to the

More than one rural child owed his life to electricity, particularly if he happened to be born prematurely.



soil and it helped eliminate the isolation which so long had been a natural consequence of farm life. Farmers found that electricity, available at reasonable costs, enabled them to increase farm production and improve the quality of the product.

In few places on the farm has electricity wrought such a revolutionary change as in the dairy barn. In dairying, time is important, and so is the quality of the product. Electricity helps on both fronts. On a modern dairy farm, the reliable dairy cow can now be visualized as but one link in a complicated production process.

Before electricity, a dairyman was able to care for 20 to 30 cows. Today, a modern dairyman can milk, feed, and care for a herd of 120 cows. In a properly designed milking parlor, he can milk a cow a minute.

The uses of electricity on the dairy farm do not stop with the milking. The milk flows from the cow into sanitary pipes and on to a bulk milk tank for cooling. Heat extracted from milk during cooling can be used to help heat the milkhouse and also to preheat wash water for milking utensils. After milking, the glass pipe that conveys the milk from the cow to the cooler is cleaned electrically.

Cows are fed and watered electrically. With the aid of electric motors and conveyors, silage is removed automatically from a vertical silo and carried by a horizontal auger to feeding troughs.

Electricity has brought about many changes in the poultry industry, too. Time was when almost every farm wife kept a few chickens to supply her family and a few customers with eggs and an occasional dish of chicken and dumplings. The proceeds from what she sold constituted her private fund of "egg money."

Today, egg production by the rural wife is no longer



Electric graders speed up an important poultry operation.

the backbone of the American poultry industry. Her small farm flock of laying hens has given way to large, fully automated, commercial chick farms. Already, a million-hen egg operation has been started on a western farm. Electricity, along with disease control and other advances in technology, has made poultry production big business.

According to the Bureau of Census, electric energy has helped boost farm broiler production 900 percent since 1939. Egg production increased from an average of 505 dozen eggs sold per farm in 1929 to more than 3,100 dozen sold per farm in 1959. The next farm census undoubtedly will reveal even larger gains.

The modern poultry farmer uses electricity both as mechanical energy and as heat, light, and even for music which soothes the hens. Today, it is standard operating procedure to illuminate laying houses, for USDA tests have shown that from December through May, hens in lighted houses produce a monthly average

The Goal of Parity

The continuing objective of REA and its borrowers is to make electric service available to rural people under rates and conditions comparable to those available in nearby towns and cities. Parity of electric service with urban areas is basic to the development of equal economic opportunity for rural America. It also is essential to achieving better living standards in rural areas and is a vital tool to commercial and industrial development.

Difficulty of this task is underscored by the fact that density on REA borrowers' systems as recently as 1962 was only 3.3 consumers per mile of line and average annual revenue was \$460 per mile. Class A and B electric utilities, on the other hand, have a consumer density

of 33.2 and average revenues of \$7,164 per mile of line.

To help overcome these handicaps rural electric systems are assisted by two equalizers provided by Congress in the Rural Electrification Act. These are favorable financing and technical assistance from REA. In addition the borrowers themselves are helping to achieve the parity objective through the employment of four basic equalizers. These are their struggle to attain territorial protection for the service areas they have pioneered; their efforts to obtain lower cost wholesale power dedicated to the best interest of the rural consumers they serve; their active participation in programs to promote the economic development of their service areas; and in achieving more efficient, non-profit operation.



Chicks begin life electrically in an incubator.



Farmers depend on electricity to keep chicks warm in winter.

Removing bark from poles used to be a tedious operation before this electric debarker was installed.





Lumber mill in remote Yaak Valley, Montana, switched to electric saws and related equipment when power lines were brought in through dense forest region. The mill will also be able to operate year-round, employing additional local people.

of 13.6 more eggs apiece than hens in unlighted ones.

Electricity aids poultry and egg production at every step of the way. It starts by hatching the eggs. Infrared lamps then brood the chicks with a steady and reliable warmth—one of the first farm applications of electric heat. Development of such equipment began about 1920. One farmer figures that it costs him one-half cent to brood a chicken electrically during the winter.

An electric auger conveys chicken feed to bins at the top of the brooding house. From there it is carried to the flock automatically.

In an up-to-date laying house, there may be a population as high as one bird for every square foot of floor area. Perches, waterers, and feeders are installed one above the other over a droppings pit. Several times a week, an automatic cleaner removes the droppings. Forced ventilation and solar heat make for a dry house, even in damp, cold months. Time clocks control the feeding apparatus and the lighting period.

Today, advanced sorting systems are available which permit two workers to inspect and pack 7,200 eggs an hour. Eggs on endless conveyer belts are inspected

for dirty or cracked shells and moved to an electronic detector, which rejects eggs containing blood spots; they are automatically graded and aligned with small ends down. Finally, vacuum-transfer units place them six at a time in cartons.

Thirty years ago the average hen laid only 121 eggs per year. Today she lays 207, and the best flocks average 250 or more eggs per hen per year. As farm poultry production continues to rise, it may prove practical to utilize modern data processing machines to keep records on layers.

On a poultry farm in Virginia, for instance, the owner keeps an individual file card on each layer. Any hen which fails to meet the minimum production quota of 15 eggs per month, as shown by the record card, ends in a stew.

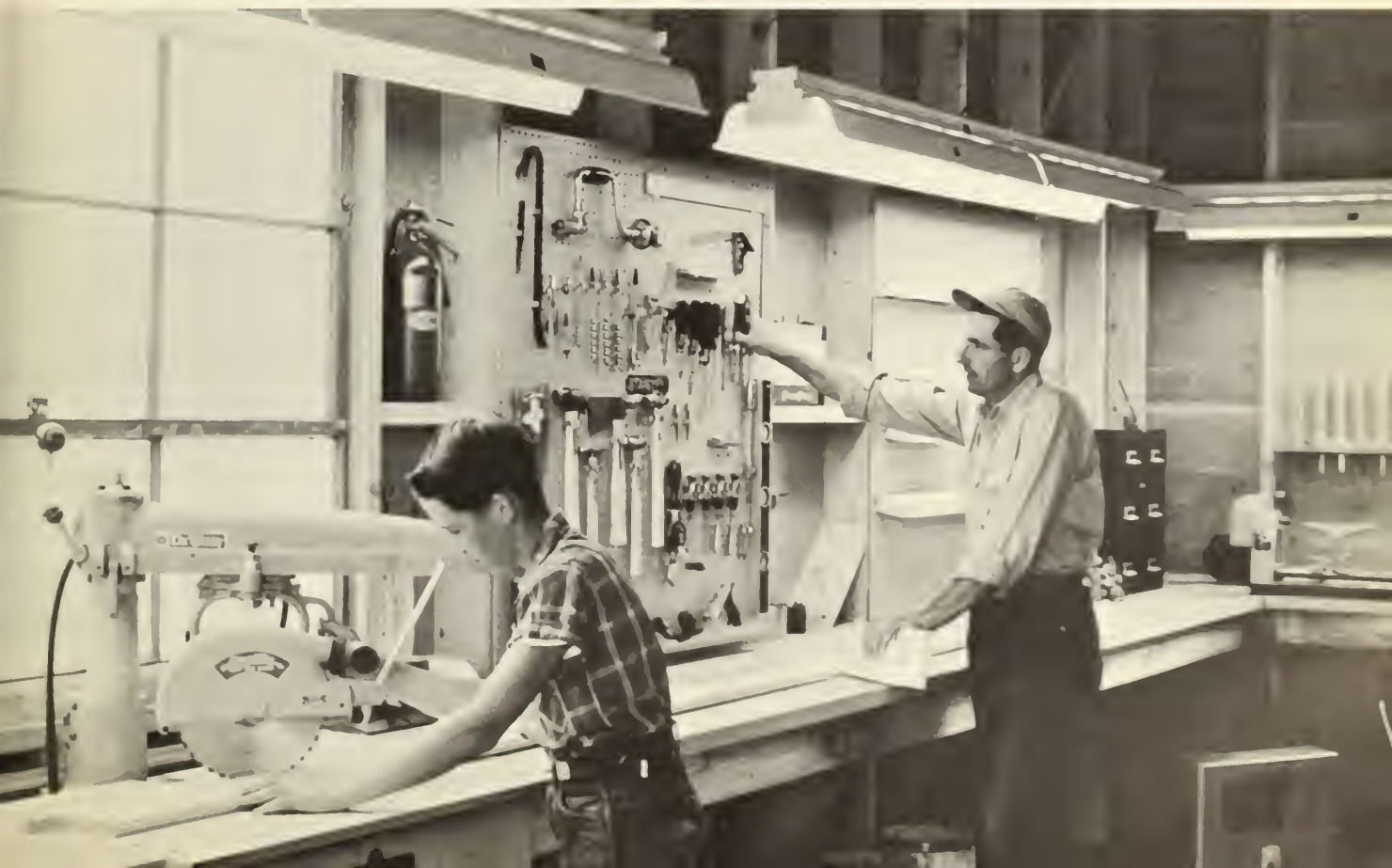
It is not hard to see how punched cards and an electronic tabulator might keep track of this information in a large operation. The day is not far off when one man should be able to care for a flock of 25,000 laying hens.

In the livestock business, electricity is being employed to control the environment of animals. Beyond



The electric milking machine does one of 400 different chores electricity performs on today's modern farm.

The farmer saves valuable time and money by making his own emergency on-the-farm repairs.



any question, the air that animals breathe, the humidity, the hours of sunshine, the temperature, and the kind of food they eat, have a direct bearing on their health and weight gains. Stockmen and researchers are finding ways to use electricity to make sure each of these factors is favorable to maximum production.

One university, for example, discovered that hogs averaging 100 pounds in weight gained the next 100 pounds on the least feed when the temperature ranged between 70° and 72°. At 200 pounds, hogs utilized feed most efficiently at 60° temperatures. The feed savings at these controlled temperatures would soon pay for proper housing of hogs, researchers found.

In a California experiment, a big electric fan was used to blow air over a herd of beef cattle when the temperature got above 100°. The cattle in the path of the fan gained 2.3 pounds per day, while cattle in an adjoining pen gained only 1.3 pounds per day.

Heat lamps have proved successful to warm both baby pigs and lambs for a number of years, and their use will undoubtedly become even more widespread in the future. By using an electric brooder for 10 days, a farmer can raise one more pig per litter. What's more, pigs can be farrowed in colder weather when the demands on labor are lower. This also averts the old problem of marketing the year's output when prices are lowest. Farmers have also found that larger hog litters can be produced by using air conditioning in the farrowing house during hot weather.

A number of lamb raisers report that electric brooding newborn lambs for from 1 to 5 days is proving profitable. Under an electric brooder, lambs are dry 30 minutes after birth.

As in the dairy and poultry businesses, electricity has helped with the watering and feeding of meat animals. Electric heating elements in automatic livestock waterers reduce costs, increase production and relieve the farmer of the task of chipping ice out of tanks and troughs.

In cooperative tests at the Iowa Agriculture Experiment Station, hogs that drank from automatic waterers gained 10 pounds more per animal in 6 winter weeks than hogs watered twice daily.

Fully automated feeding systems, like automatic waterers, help reduce or eliminate the labor required to prepare and distribute feed to the livestock. The automatic hog feeding system may also include pen cleaning and waste disposal. The automatic feeder also may be designed to feed silage to cattle, in addition to grain and supplement.

Dusk-to-dawn lighting of feedlots for cattle is now being studied in Kansas. In 1962, cattle in lighted lots

gained at a rate of 4.4 percent more than unlighted animals. In the following year, the increase was 6.1 percent. The farmer received an extra \$7.84 per animal, after paying for electric power.

Mechanical silo unloaders powered by electric motors may be used efficiently as an integral part of an automatic feeding operation. In a Virginia study which involved 62 upright silos, it was found that 0.30-man-hour per ton was needed to unload silage by hand. When 8 mechanical unloaders were used in 14 silos, 0.04-man-hour per ton was required. Thus, labor saved was about one-fourth man-hour per ton.

Electric grain and hay dryers help save more feed with less loss of nutrients. New machines press feed into pellets for easier feeding.

In the next decade, there will be many more applications found for electric power in the livestock industry. The revolution has just begun.

While electricity was changing the farm yard, it revolutionized the rural home too. With the coming of electricity, the farmer's wife switched to electric equipment and appliances as fast as family finances would permit. Today most farm women cannot tell you off-hand how many electric appliances they have in their homes.

Modernization of the rural kitchens was long overdue. It hardly seemed fair that the rural housewife should have to wait for electricity so much longer than her counterpart in the city, for she needed electricity much more. As a rule, she had to cook for more people than the women in town, and at harvest time, she had to deliver mountains of food to the table for hungry harvest hands. She performed this feat at a wood range at the hottest time of the year.

She had more canning to do, because a typical farm family raised and preserved most of its own food. Her laundry, mostly overalls caked with dirt, was more of a chore than for her city neighbors. She had to pump her own water, and she had to keep food from spoiling without a refrigerator.

There isn't much difference between the home of the farm wife of today and that of a suburban housewife. Her newly installed electric oven will cut on and off and clean itself automatically. Her automatic washer and dryer will clean several loads of clothes while she attends to other things. The garden produce, picked at early morning freshness, is packed away in the freezer. The children are watching television. The pot-bellied stove has disappeared from her home. If she is among the up-to-date, the rural homemaker has had electric heat installed in her home.

Her home is not unusual, as farm homes go these

days. You can find similarly equipped farmhouses on ranches in Texas, on a rural road in Georgia or at the edge of an Iowa cornfield.

The electricity which makes these appliances possible works at very low wages. Housewives have found that one kilowatt-hour will provide any of the following services—

- Light a 100-watt lamp for 10 hours.
- Run an electric iron for 2 hours.
- Pump 1,000 gallons of water from a shallow well.
- Wash 70 pounds of clothes.
- Refrigerate food for 18 hours.
- Run a radio for 15 hours.
- Run a vacuum cleaner for 3 hours.
- Cook a meal on an electric range.
- Toast bread for eight mornings.

In recent years, REA-financed systems have done much to accelerate the purchase and proper use of electric equipment for the home. Since the early days of promotion by REA and the Agricultural Extension Service, the cooperatives have assumed most of the responsibility for promoting power use. During fiscal 1963 and 1964, 1,500 full-time and 1,900 part-time employees provided technical assistance to co-op members in adapting electricity to farm enterprises. As a rule, co-ops stay out of the appliance and hardware merchandising business themselves, working closely with local dealers to aid them in conducting sales campaigns. Many state rural electric associations and generation and transmission co-ops have been instru-

mental in training member service personnel on new educational techniques to promote the beneficial use of electricity.

Widespread campaigns for the promotion of electricity include the Medallion Home Program, electric heating, home and yard lighting and various national home appliance programs. The promotion programs have proved their worth. The National Rural Electric Cooperative Association reports that for the fifth consecutive year members of electric cooperatives have added more than \$1 billion to the national economy by their purchases of home appliances and water systems.

Where adequate financing for appliance purchases is not available, co-ops occasionally have made consumer loans from their own general funds. Others have borrowed money from REA under Section 5 of the Rural Electrification Act to finance consumer purchases of wiring, appliances, and plumbing. During REA's first 30 years, more than \$46.5 million in loans were made for financing of consumer facilities and locker plants.

The entry by co-ops into the power use promotion field has served a number of good purposes. Campaigns help the cooperatives by building electric load. They help farm women by putting more appliances into their homes at prices and terms they can afford. They aid dealers by increasing their sales volume. The net result has been a new way of life for women in rural communities and a pronounced thrust to the economy.

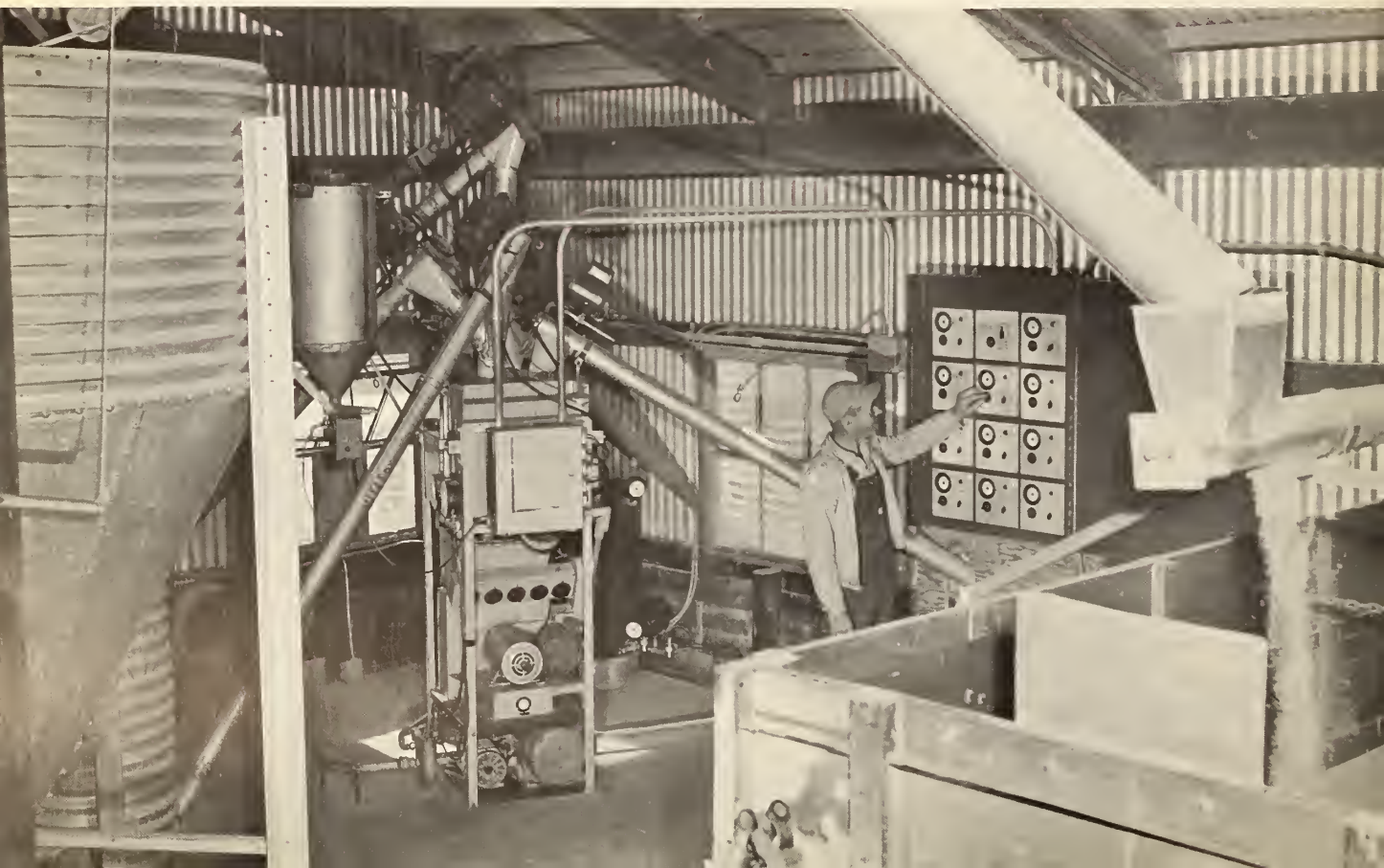
REA headquarters are located in the 2-block long South Building of the U.S. Department of Agriculture.





Grain mill, made possible by electricity, boosts economy of eastern shore town in Maryland by employing local residents.

An Illinois turkey farmer adjusts electrical controls to deliver feed to auger wagon for delivery to field. This electrically powered feed processing center eliminates hand labor, supplies nutritious diet for flock.



6. THE DEMAND FOR WHOLESALE POWER

The construction of electric distribution lines into rural America is only part of the job of the rural electric system. Electricity cannot be distributed to rural people without an adequate and dependable supply of wholesale electric power available at reasonable cost and under terms which do not threaten the security and effectiveness of the REA borrower.

Typically, the rural electric systems buy their power wholesale from existing suppliers and deliver it at retail to their consumers. In 1964 they purchased about 82 percent of their power supply from commercial power companies, from Federal agencies, such as TVA, and from other public bodies, including municipally owned systems. The remainder they produced themselves, utilizing REA generation and transmission loans to finance the facilities.

While the Rural Electrification Act of 1936 granted the REA Administrator broad authority to make loans for generation and transmission, it is REA policy to approve such loans only under one or more of the following conditions: (1) where no adequate or dependable source of power is available to meet consumers'

needs; (2) where rates offered by existing power suppliers would result in a higher cost of power for consumers than the cost from generating facilities financed by REA; and (3) where REA-financed generation and transmission facilities are necessary to assure the security and effectiveness of the REA-financed distribution system.

The first REA-financed generation loans were made to distribution borrowers for small, emergency plants, usually diesel. Essential as these units were in the early days of the program, they were too small to be efficient and they delivered high cost power.

To make available to their consumers the benefits of lower cost power from larger and more efficient generating units, a number of distribution cooperatives joined together to form federated generation and transmission cooperatives. The board of directors of a federated G&T co-op is comprised of representatives of each of its member co-ops and the system supplies wholesale power to all of them. The largest of these G&T cooperatives is the Dairyland Power Cooperative, of La Crosse, Wis., which currently numbers 27 REA-



Electric power enables large food canner to process cherries close to source of supply.



Pumping for Profit

Crop irrigation with electrically pumped water can make the difference between success and failure for many large-scale farm operations, particularly in the West.

Almost 93 percent of the 33 million acres of irrigated land in the United States is in the 17 Western States. Of the 6.5 million-acre expansion in western irrigation from 1949 to 1959, 5.3 million acres or 83 percent, was in four States: Nebraska, California, Kansas, and Texas.

Irrigation is big business in Texas. The State ranks first in the Nation in land under pump irrigation, with over 5.6 million irrigated acres. It ranks second in percent of total land under irrigation with 82 percent.

REA's 99 electric borrowers, serving in all but 10 of Texas' 254 counties, provide much of the power necessary to run the pumping plants. Irrigation power boosts profits for Texas farmers, and thousands of other rural electric consumers in Kansas, Oklahoma, Nebraska, Arizona and California. Western farmers are now able to grow corn, wheat, cotton, vegetables and many other crops.

financed cooperatives in four states as members and had received loans as of January 1, 1965, to provide a nameplate generating capacity totaling 612,900 kilowatts.

Sometimes a G&T cooperative is a paper organization, owning no facilities but serving as a bargaining agent in purchasing power in large blocks for member systems. And a few REA power-type borrowers own transmission facilities only.

For example, KAMO Electric Cooperative, a federation of 15 distribution cooperatives in Kansas, Arkansas, Missouri and Oklahoma, delivers purchased power over its high-voltage lines to the load centers of member systems. In Missouri, G&T borrowers joined forces to establish the Associated Electric Cooperative. This cooperative federation, pooling and marketing the output of its member systems, also has power exchange

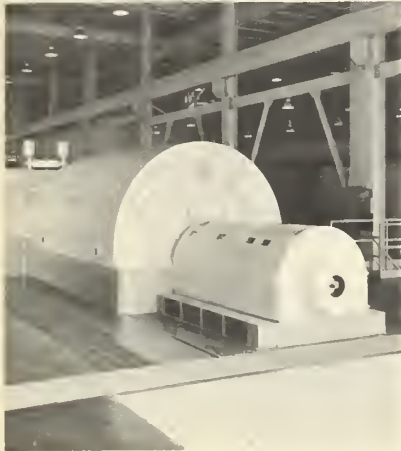
contracts with the Southwestern Power Administration, a Federal agency which markets power from Government-built multipurpose projects in the Southwest, and with several power companies. Such a pooling arrangement reduces the amount of standby generating capacity needed, provides for alternate routing of power in case of breakdowns from storm damage or other causes, and effects significant economies in the cost of power for all suppliers participating in the pool.

The tide of technology will require greater emphasis on pooling of resources, not only among cooperatives but with other utility systems, both public and private. The kind of large-scale pooling arrangements being envisioned by the electric industry today will produce enormous benefits for rural electric cooperatives and their consumers. (Continued on p. 32)



From Powerplant to Consumer

Electricity is produced at generating plants.



Generators transform energy from fossil fuels, natural gas, or falling water into electricity.



A step-up substation boosts power to 69,000 volts or higher



... so that it can be transmitted to distant rural consumers.



Power is reduced to 12,500/7,200 volts at a step-down substation, and is distributed to farms . . .



... where the power is further reduced to ordinary household current.



The load center is the nerve center of the modern farm.

(Continued from p. 30)

As men and materials were released after World War II, an upsurge in the demand for electric power in rural areas began. In 1944, only 1.8 billion kwh was delivered by REA's distribution borrowers. By 1954 the demand had climbed to 13.8 billion kilowatt-hours and at the end of 1964, it had passed 39 billion. The rapid upward trend continues, and the need may reach 85 billion by 1975.

This fast-growing demand for electric power in rural America, coupled with advancing technology in the electric industry, calls for large steam generating plants and extra high voltage transmission lines.

In 1958, the Central Nebraska Public Power and Irrigation District began operation of the first REA-financed 100,000-kilowatt single-unit generating plant. In 1964 REA made a loan to Dairyland Power Cooperative in Wisconsin for a 300,000-kilowatt generating plant to meet the rising power needs of 104,000 consumers of its 27 rural distribution systems in 4 States as well as to meet the expanding needs of Cooperative Power Association with its 18 Minnesota distribution system members serving 78,000 rural consumers.

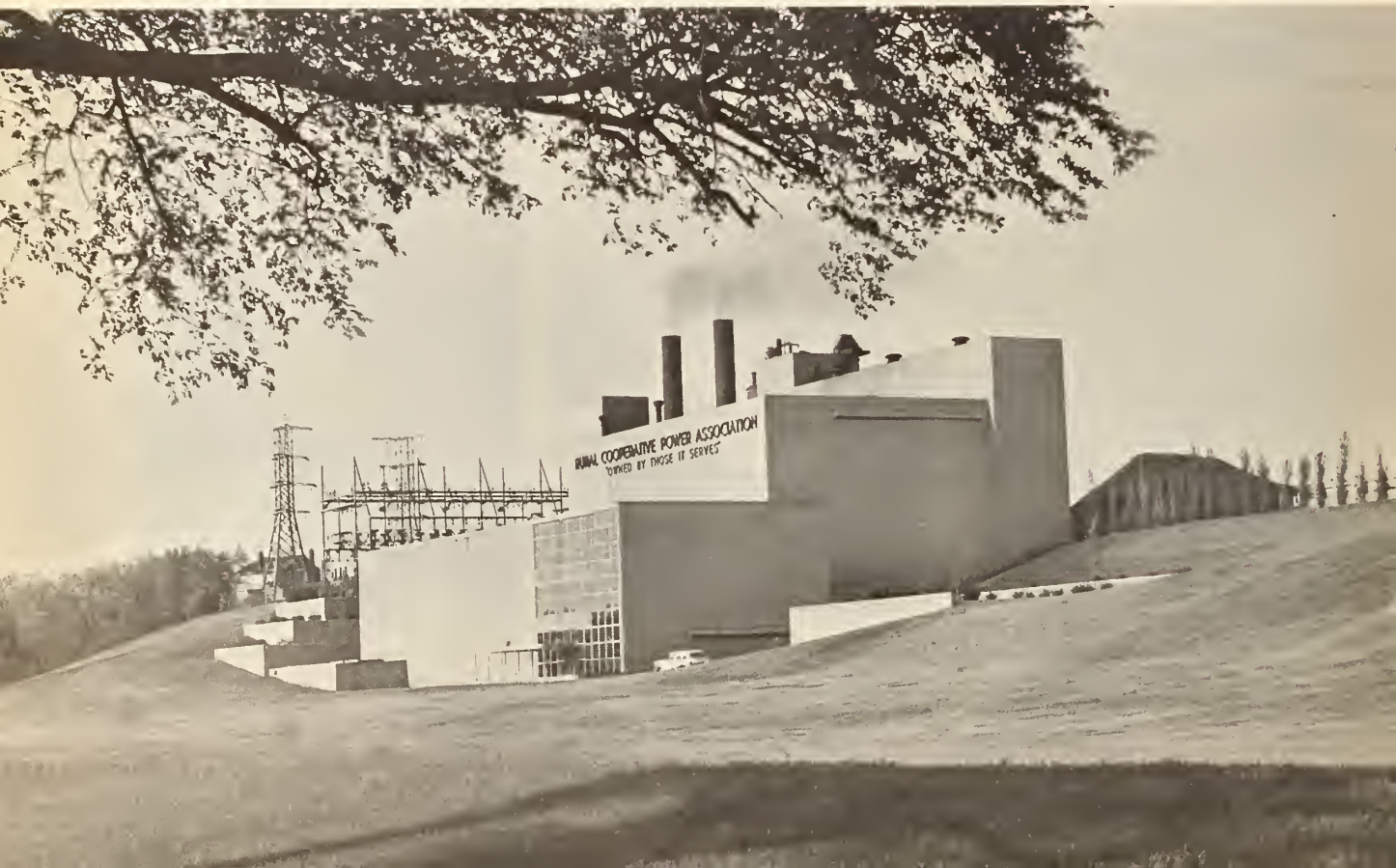
By the electric industry's standards, a 300,000-kilowatt single-unit plant is not exceptionally large. It takes no prophet to foresee that by 1980, one-million-

kilowatt plants will be commonplace in the United States. Plants with capacities of 1.5 million or 2 million kilowatts by 1980 are being considered, with nuclear plants accounting for a growing share of production.

Striking technological changes likewise are taking place in power transmission. Only a few years ago, movement of power over a distance of more than 200 miles was not considered practical. Now voltages have been stepped up from 110,000 volts to 230,000. Two commercial companies already have built 500,000-volt systems. Lines with voltages as high as 1,000,000 volts transmitting power more than 1,000 miles are already on the horizon.

Transmission systems are being interconnected state-by-state and region-by-region. The American electric industry is talking about a nationwide grid that will interconnect the lines of all power suppliers eventually. But interconnection is nothing new to rural electric cooperatives. Today, virtually all REA-financed plants are interconnected in some way with other facilities. Tying together large-scale steam generation with hydroelectric facilities and moving power in giant quantities from region to region would bring enormous benefits to consumer-members of rural electric cooperatives all across the land.

Power co-op at Elk River, Minn., is the first REA-financed system to generate power with atomic energy.



7. TEST OF THE FUTURE



Kitchen of modern, all-electric farmhouse bears little resemblance to pre-REA model.

REA-financed rural electrification in three decades has brought an impact upon rural America far beyond the dreams of its early pioneers. Besides improved farming and better living, it has brought new and challenging opportunities for jobs and careers in the rural areas.

Some measure of the changing pattern of life in the rural community can be observed in the growing use of electricity. In 1941, the average farm and residential consumer on REA-financed lines used only about 50 kilowatt-hours of electricity per month. By 1965, this rural residential average had risen to about 450 kilowatt-hours per month, or nine times the 1941 average, and REA was predicting an average use of 700 kilowatt-hours per month by 1975.

With dependable round-the-clock electric service available, businesses and industrial plants have sprung up along rural electric lines, creating new jobs, markets and services for rural people. For instance, two

Nebraska brothers, taking note of the farmer's need for protection from summer heat, invented an air-conditioned tractor cab and set up a plant employing 60 men to manufacture it. In Missouri, a farmer whose place was too small to cope with the revolution in agriculture, established a successful business in electrical wiring and plumbing in the local community. His wife, not to be outdone, set up a self-service laundry in the outskirts of a small village served by the rural electric cooperative.

A clothing factory employing 40 persons was established on REA-financed lines in a low-income agricultural area in Virginia. In Ohio, a clay pipe factory was started employing 60 workers and utilizing local clay. A rural fabric manufacturing plant in Tennessee employs 1,500 persons, and a wallboard plant in Oklahoma using local gypsum deposits employs 200 persons. These are only a few of the thousands of businesses with jobs that rural electrification has

helped make available for young people.

The rural electric cooperatives not only provided electric service for many of these industries, but they also furnished technical help in financing, planning, engineering and construction of these and other rural industries. In mid-1961, REA established a rural areas development staff to assist its borrowers in their efforts to stimulate the economy and boost employment in their service areas. In many parts of the country, these efforts, coupled with those of other leaders and agencies, have stemmed the tide of decay and brought a rebirth of the rural community and of the neighboring towns.

By helping enrich the lives of rural people through electric service and rural areas development, the rural electric cooperatives have added to their own financial

Keeping Members Posted

Rural electric cooperatives use a variety of media to keep members informed of co-op business, developments in rural electrification, and the advantages of good power use. They use the press, radio, television, special reports, newsletters and State papers. State papers and newsletters or both are used by most of them. Issued monthly, these media provide a frequent contact between the co-op and members. A well-informed membership, the co-ops know, is a strong and active membership.

The newsletter may range from an 8½- x 11-inch mimeographed sheet to a printed publication with 24 pages of news and pictures. It is prepared by the co-op staff.

State papers are a product of State associations of REA electric borrowers. Most of them use the magazine format and are edited by staffs employed by the associations. Wisconsin, followed by Illinois and Texas, led the way in this field. Today, the State papers circulate in 32 States and reach, according to the editors, more than 2,600,000 consumers. In addition to Wisconsin, Illinois, and Texas, the papers circulate in Alabama, Arizona, Arkansas, Colorado, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Virginia, Washington, and Wyoming.



Future homemakers learn new skills.



New rural homes help REA borrowers offset losses from idle services, resulting from farm consolidations.

Electrification brings higher living standards to all farm families.



strength. Besides selling more electricity each year to existing consumers, these systems are adding more than 140,000 new rural consumers to their lines annually. As a result of this growth, borrowers are adding to their net worth at the rate of more than \$100 million a year.

As in the urban segment of the electric industry, rural electric cooperatives will require increasingly large sums of money to expand their facilities to meet the ever-mounting needs of their consumers. Their credit record is remarkable. At the end of 1964, only one borrower was more than 30 days behind schedule on its repayments to the Government.

The member-owned electric systems have proved themselves efficient and financially responsible organizations. They have proved capable of generating, transmitting and distributing electric power over difficult terrain to even the most thinly populated parts of the country. They have proved their right to serve as a permanent though small part of the electric industry.

The test of the future will be vastly different from that of the past. In the 1930's and 1940's, the obstacles were many. There was the physical barrier of a giant land. There were legal barriers. There was the task of taking the REA story from farm to farm and neighbor to neighbor. There was the fear that rural people would not use all the electricity that was available. There was the enormous task of organizing rural electric cooperatives and getting them started on an un-

charted course in constructing and operating rural systems.

For the new generation that is growing up today, rural electrification will be an exciting challenge. Unlike their forebears, these young people will not be plodding through the mud to a one-room schoolhouse to learn how to get "lights" in their homes. Instead, they will look to scientists in industry, Government and the agricultural colleges to find new and better ways of employing electric power in their homes, on their farms and in their rural businesses.

Thousands of these young people, when they grow up, will be enjoying careers as employees of these rural electric systems. Better educated than their fathers and mothers, they will break the barriers to progress in rural electrification with new tools, new technology and new techniques.

Whether today's rural youth is engaged tomorrow in farming, operating a small factory, running an appliance store in town, managing a meat packing plant or recreation center out in the country, bookkeeping for the electric cooperative or teaching in a consolidated all-electric school, his life will be more productive and more rewarding because of rural electrification.

After more than 30 years of the REA program, the revolution it has brought has only just begun. A whole vista of opportunity for rural people lies ahead. In the future, more rural young people will be saying, "Those city lights don't seem so bright after all!"

Highlights of Rural Electrification

1935

April 8—President signs Emergency Relief Appropriation Act of 1935. It includes rural electrification as one of 8 categories of projects.

May 11—Executive Order No. 7037 creates Rural Electrification Administration, under authority of Emergency Relief Appropriation Act.

May 20—Morris L. Cooke is appointed first Administrator of REA.

August 7—President's regulation No. 4 establishes REA as a lending agency.

September 1—First issue of REA's "Rural Electrification News" is published.

1936

January 6—Senator George W. Norris of Nebraska and Rep. Sam Rayburn of Texas introduce bills to establish new Rural Electrification Administration.

May 20—President signs Rural Electrification Act of 1936.

October 1—First loan under Section 5 for financing consumers wiring and equipment approved for \$25,000 to Meeker Cooperative Light and Power Association, Litchfield, Minn.

December 29—REA approves first loans to 2 federated power co-operatives, both in Iowa, later merged into Cornbelt Power Cooperative, Humboldt, Iowa.

1937

February 15—REA drafts the Electric Cooperative Corporation Act, a model state law for formation and operation of rural electric co-ops.

February 23—John M. Carmody is appointed REA Administrator.

1938

January 10—Federal court upholds right of five distribution co-ops to organize a federated cooperative to generate electric power for members.

October 1—In Iowa, REA Farm Equipment Tour begins its 4-year trek across the Nation to acquaint rural people with applications of electricity on the farm.

1939

July 1—REA transferred to the U.S. Department of Agriculture under Reorganization Plan II.

September 26—Harry Slattery is appointed REA Administrator.

December 31—Average monthly kilowatt-hour consumption on REA-financed lines reaches 50 during December.

1940

June 30—More than 30 percent of U.S. farms are receiving central station electric service.

August 31—REA movie "Power and the Land" premiered at St. Clairsville, Ohio, headquarters of Belmont Electric Cooperative, where it was filmed.

September 12—Loan approved to serve millionth rural consumer.

1941

June 30—REA-financed systems number 732 in 45 States . . . REA assists in supplying electric power to new military installations.

December 19—REA moves its headquarters to St. Louis, Mo., to free Washington office space for war agencies.

1942

March 19—National Rural Electric Cooperative Association is organized in Washington, D.C.

March 30—Authorization of War Production Board is required before REA borrowers can purchase construction materials . . . WPB permits completion of 34 projects already underway.

July 1—Borrowers halt mass construction because of wartime material shortages . . . Efforts of REA borrowers and power companies boost percent of electrified farms to 38.3.

1943

January 1—WPB eases restrictions to permit borrowers to build short extensions to farmers who needed electricity to increase production.

December 24—Nearly 53,000 farmers ruled eligible by WPB county war boards to receive short-

line extensions from REA borrowers during year.

1944

September 21—President signs Pace Act, extending life of agency indefinitely, and changing amortization schedule and interest rate on all REA loans.

1945

February 1—REA publishes preliminary report "Rural Electrification After the War" outlining a 5-year program of expansion.

May 12—WPB issues first of several orders, removing major restrictions on line construction.

June 30—Claude R. Wickard is appointed REA Administrator.

September 27—Secretary of Agriculture calls REA back to Washington.

1946

May 23—REA loan provides for service to 2-millionth consumer.

June 30—Administrator re-emphasizes "area coverage", noting that many more borrowers adopted principle during fiscal year . . . First loans are approved to serve sparsely settled areas in Great Plains and West . . . New consumers being connected at rate of 26,000 per month.

July 31—Safety and job training program draws participation of 61 percent of REA borrowers.

1947

May 22—Administrator reports that 2½ million farm families and 2 million other rural consumers still are without electric light. . . . Sixty percent of unelectrified farms, he says, are east of the Mississippi.

June 30—Borrowers connect two consumers per minute during fiscal year. . . . Thirty-three new systems energized . . . About 3½ million farms receiving service . . . One hundred power use advisors employed by co-ops. . . . Co-ops determine optimum areas and boundaries.

1948

February 1—Certain REA borrowers are asked to employ certified public accountants to audit their general accounts . . . bulk of

technical assistance needed by systems will be provided by borrowers themselves.

November 10—REA approves loan to provide electric service to 3-millionth consumer.

1949

June 30—During fiscal year . . . Funds advanced pass \$1 billion mark . . . About 460 borrowers adopt two-way radio communications with line crews . . . Co-ops help increase supply and lower price of conductor, breaking last bottleneck in large scale construction.

October 28—President signs H.R. 2960, amending Rural Electrification Act to provide for a rural telephone loan program.

1950

January 1—Area coverage pledge is made part of REA loan contract.

June 30—More than 77 percent of all U.S. farms are receiving central station electric service.

September 8—President signs Defense Production Act, and REA borrowers again face wartime material controls.

December 4—First national conference of power use advisors opens in Washington.

1951

June 29—Deputy Administrator George W. Haggard, and five other REA staff members, die in plane crash.

June 30—REA estimates 16 percent of farms still dark . . . REA borrowers now serving 3.5 million consumers . . . Average farmer on REA lines uses 146 kilowatt-hours per month.

1952

June 30—Twelve percent of Nation's farms still un electrified . . . REA borrowers are operating more than 1,000 energized systems . . . Electric area offices established.

November 12—Thirty G&T cooperatives represented at Annual Power Management Conference.

1953

April 29—Ancher Nelsen appointed Administrator . . . Henry County REMC, Newcastle, Ind., be-

comes first electric borrower to pay off loan, out of earnings.

June 30—Census reports less than 10 percent of farms without central station service.

December 31—Net worth of all REA electric borrowers passes \$200 million mark.

1954

February 3—REA institutes simplified loan procedure ("short form") for borrowers who can meet stringent financial requirements.

June 1—REA starts publication of monthly magazine, "Rural Lines."

September 12—REA officials and co-op leaders explore atomic energy possibilities with staff members of Atomic Energy Commission.

1955

January 1—First REA borrower reaches monthly average power usage of 1,000 kilowatt-hours (Lincoln Electric Cooperative, Davenport, Wash.).

June 15—Rural Electrification Act amended to revise formula for state allotment of electrification loan funds.

1956

May 14—REA approves first loan for conventional components of nuclear powerplant, to Rural Cooperative Power Association, Elk River, Minn.

June 26—David A. Hamil appointed REA Administrator.

June 30—Payments made by borrowers ahead of schedule approach \$100 million mark.

1957

April 18—REA approves largest single electric loan to date, \$18,620,000, to Dairyland Power Cooperative, La Crosse, Wis.

June 30—Five percent of farms are now without central station electric service.

July 1—Only 9 electric borrowers payments overdue more than 30 days . . . Total number of consumers receiving service from REA-financed lines passes 4.4 million.

1958

March 19—President directs Secretary of Agriculture "to accelerate necessary construction and

purchase of materials and equipment under already approved loans."

April 11—In response to President's request, REA inaugurates stepped-up sales campaign.

April 30—Total electric repayments pass billion dollar mark.

May 31—Largest single generating unit financed by REA, 100,000-kw steam plant, goes into operation near Lexington, Nebr.

June 1—Only 4 electric borrowers overdue more than 30 days.

June 27—REA approves contract between Atomic Energy Commission and Elk River, Minn., co-op for operating reactor powerplant.

June 30—REA borrowers are serving more than 4.5 million consumers . . . Energy sales by REA borrowers during 1958 total more than 20 billion kilowatt-hours.

1959

May 11—REA begins 25th year, with 1,030 electric systems energized, only one borrower overdue in payments to Government.

October 28—REA observes 10th anniversary of telephone loans program with \$610 million in loans approved to 679 borrowers, to provide new or improved service to 1¼ million subscribers on 328,000 miles of line.

1960

May 11—REA celebrates silver anniversary of electric loans program.

1961

March 3—Norman M. Clapp appointed Administrator.

May 31—REA announces new G&T loan policy, adding third or "security" criterion to conditions for making G&T loans.

June 15—REA approves largest loan to date: \$60.2 million to G&T cooperative in Indiana.

June 21—REA sets up Rural Areas Development staff to help borrowers promote economic development in rural areas.

September 8—REA approves first RAD loan.

October 9—REA receives one billionth dollar repaid on the principal of electrification loans.

November 2—REA makes \$20.3 million G&T loan in Alabama—first loan under new third criterion.

1962

May 8—REA approves G&T loan in Bismarck, N. Dak., for first generating plant to be fired by lignite coal.

June 20—New Mexico rancher is 5 millionth consumer to receive REA-financed electric service.

1963

January 1—Budget recommendation for \$425 million in loan funds, highest in REA history, is submitted to Congress.

June 28—REA approves \$30.4 million G&T loan in Missouri to enable cooperative to put into effect major power pooling arrangement.

1964

February 17—REA announces record \$237.5 million paid by borrowers for wholesale power in 1963.

March 30—REA revises Section 5 loan policy requiring borrowers of RAD-type loans to return all receipts from such loans to REA.

May 25—Total loan payments by electric borrowers pass \$2 billion mark.

October 30—REA approves \$51 million G&T loan to Dairyland Power Cooperative for 300,000-kilowatt generating plant—largest single-unit plant to be financed by REA to date.

1965

May 11—REA celebrates 30th anniversary.

Statewide Associations and When They Were Organized

1935

Indiana Statewide Rural Electric Cooperative, Inc.

1936

Wisconsin Electric Cooperative.

1937

Nebraska Rural Electric Association . . . Minnesota Association of Electric Cooperatives.

1940

Texas Electric Cooperatives, Inc. . . . Georgia Electric Membership Corporation.

1941

Association of Illinois Electric Cooperatives . . . Ohio Rural Electric Cooperatives . . . Kansas Electric Cooperatives, Inc. . . . South Carolina Electric Cooperative, Inc. . . . Arkansas State Electric Cooperative, Inc. . . . South Dakota Rural Electric Association.

1942

Association of Louisiana Electric Cooperatives, Inc. . . . Oregon Rural Electric Cooperative Association . . . North Dakota Association of Rural Electric Cooperatives . . . Oklahoma Association of Electric Cooperatives . . . Iowa Association of Electric Cooperatives . . . Tennessee Rural Electric Cooperative Association, Inc.

1943

Kentucky Rural Electric Cooperative Corporation.

1944

Virginia Association of Electric Cooperatives . . . Electric Power Association of Mississippi . . . New Mexico Rural Electrification Cooperative Association, Inc.

1945

Missouri State Rural Electrifica-

tion Association . . . Colorado Rural Electric Association.

1948

Alabama Rural Electric Association of Cooperatives.

1950

Tarheel Electric Membership Association, Inc.

1951

Alaska Rural Electric Cooperative Association, Inc. . . . Florida REA Cooperatives Association, Inc. . . . Montana Associated Utilities, Inc.

1963

Utah Rural Electric Association.

1964

Pennsylvania Rural Electric Association. . . . Grand Canyon State Electric Cooperative, Inc.

To Order Photos

The following photographs, identified by page and negative number, are for sale by the Photography Division, U.S. Department of Agriculture, Washington, D.C., 20250. Glossy photographs, 8x10 inches, \$1.15 each; 5x7 inch photos are \$.90 each. P.5, REA-15294. P.6, upper, 42; lower, 2326. P.9, 6937-D. P.10, 2343-A. P.11, 14982. P.12, N-21731. P.13, 4123. P.14, 6298. P.15, 2342-A. P.16, BN-25960. P.17, 14907. P.19, 13201. P.21, 13110. P.22, 13675. P.23, upper left, 8404; upper right, 12273; bottom, REA-15097. P.24, 15056. P.25, upper, N-55126; lower, BN-24753. P.27, N-42256. P.28, upper, N-44051. P.30, left, 13812; right, 14013. P.31, upper left, 14767; middle right, (transmission lines) 14763; lower left, DN-2155; lower center, 13696; lower right, N-34556. P.33, N-20743. P.34, upper, N-55134; lower, 14682.

REA Electric Borrowers

Date of First Loans

1935

- July 22:**
Crisp Farmers Co-op. Corp., Cordele, Ga.¹
Boone County REMC, Lebanon, Ind.¹
Volunteer Elec. Co-op., Decatur, Tenn.¹
City of Dayton, Dayton, Tenn.²
- Sept. 24:**
Rayle EMC, Washington, Ga.¹
Northern Lights, Inc., Sandpoint, Idaho¹
Suburban Elec. Corp., Dunlap, Ill.²
Central Iowa Power Co., Des Moines, Iowa³
Marshall County REC, Marshalltown, Iowa¹
Mille Lacs Region Co-op. P & L Ass'n., Aitkin, Minn.¹
Monroe County EPA, Amory, Miss.¹
Roosevelt Rural PPD, Mitchell, Nebr.⁴
Gering Valley Rural PPD, Gering, Nebr.⁴
Norris Rural PPD, Beatrice, Nebr.⁴
Tide Water Power Co., Wilmington, N.C.³
Pioneer REC, Inc., Piqua, Ohio¹
State Rural Elect. Authority, Columbia, S.C.²
Bartlett Elec. Co-op., Inc., Bartlett, Tex.¹
- Oct. 1:**
Clarke-Washington EMC, Jackson, Ala.¹
Kentucky Rural Elec. Co., Louisville, Ky.³
Wells Elec., Ass'n., Wells, Minn.¹
City of Wilson, Wilson, N.C.²
Inter-County REC, Inc., Hillsboro, Ohio¹
Holmes REC, Inc., Millersburg, Ohio¹
- Oct. 24:**
Florida Power Corp., St. Petersburg, Fla.³
Georgia P & L Co., St. Petersburg, Fla.³
- Oct. 29:**
Eastern Iowa L & P Co-op., Wilton Junction, Iowa¹
- Nov. 23:**
Lorain-Medina REC., Wellington, Ohio¹
Logan County Co-op. P & L Ass'n., Inc., Bellefontaine, Ohio¹
Earl W. Baker Utilities Co., Bethany, Okla.³
- 1936
- Jan. 7:**
Meeker Co-op. L & P Ass'n., Litchfield, Minn.¹
Virginia Elec. Co-op., Bowling Green, Va.¹
- Feb. 19:**
Sioux ECA, Orange City, Iowa¹
Gowrie REC Ass'n., Gowrie, Iowa¹
Boone Valley Elec. Co-op., Renwick, Iowa¹
Adams County Co-op. Elec. Co., Corning, Iowa¹
McLeod Co-op. Power Ass'n., Glencoe, Minn.¹
Belfalls Elec. Co-op., Inc., Rosebud, Tex.¹
- Apr. 25:**
North Georgia EMC, Dalton, Ga.¹
Altamaha EMC, Lyons, Ga.¹
Henderson-Union RECC, Henderson, Ky.¹
Eastern Nebraska PPD, Syracuse, Nebr.⁴
Cornhusker Rural PPD, Columbus, Nebr.⁴
Tidewater Elec. Service Co., West Point, Va.³
Columbus REC, Columbus, Wis.¹
Richland Co-op. Elec. Ass'n., Richland Center, Wis.¹
- May 6:**
Snapping Shoals EMC, Covington, Ga.¹
Southern Nebraska Rural PPD, Grand Island, Nebr.⁴
Greenwood County Rural Elec. System, Greenwood, S.C.²
- May 13:**
Troup County EMC, La Grange, Ga.¹
Whitley County REMC, Columbia City, Ind.¹
Shelby County REMC, Shelbyville, Ind.¹
Amana Society Service Co., Amana, Iowa¹
Co-op. L & P Ass'n. of Lake County, Two Harbors, Minn.²
Boone Elec. Co-op., Columbia, Mo.¹
Northwestern REC Ass'n., Inc., Cambridge Springs, Pa.¹
Mutual P & L Ass'n., Inc., North Bend, Wash.¹
Chippewa Valley Elec. Co-op., Cornell, Wis.¹
Rock County ECA, Janesville, Wis.¹
- May 15:**
Monona County REC, Onawa, Iowa¹
- May 21:**
Florida Public Service Co., St. Petersburg, Fla.³
Farmers Mutual Elec. Co., Geneseo, Ill.¹
Illinois Rural Elec. Co., Winchester, Ill.¹
Menard Elec. Co-op., Petersburg, Ill.¹
Glidden REC, Glidden, Iowa¹
Nishnabotna Valley REC, Harlan, Iowa¹
The Co-op. Elec. P & L Co., Inc., Iola, Kans.¹
Lewis County REC Ass'n., Lewistown, Mo.¹
Yellowstone Valley Elec. Co-op., Inc., Huntley, Mont.²
Johnston County MC, Raleigh, N.C.¹
Edgecombe-Martin County EMC, Tarboro, N.C.¹
Baker Elec. Co-op., Inc., Cando, N. Dak.¹
Clay-Union Elec. Corp., Vermillion, S. Dak.¹
Trempealeau Elec. Co-op, Arcadia, Wis.¹
- Grand Valley Rural Power Lines, Inc., Grand Junction, Colo.¹**
Rural Electric Convenience Co-op., Auburn, Ill.¹
Tri-County Elec. Co-op., Portland, Mich.¹
Runestone Elec. Ass'n., Alexandria, Minn.¹
- June 15:**
Federated Rural Elec. Ass'n., Jackson, Minn.¹
Craig-Botetourt Elec. Co-op., New Castle, Va.¹
Shenandoah Valley Elec. Co-op., Dayton, Va.¹
Prince William Elec. Co-op., Manassas, Va.¹
Head of the Lakes Co-op. Elec. Ass'n., Superior, Wis.¹
- June 19:**
Henry County REMC, New Castle, Ind.¹
Huntington County REMC, Huntington, Ind.¹
- July 28:**
Colquitt County Rural Elec. Co., Moultrie, Ga.¹
Missouri Rural ECA, Palmyra, Mo.¹
Buffalo Elec. Co-op., Alma, Wis.¹
- Aug. 4:**
Walton EMC, Monroe, Ga.¹
Wayne-White Counties Elec. Co-op., Fairfield, Ill.¹
- South Crawford REC, Denison, Iowa¹
The Calhoun County ECA, Rockwell City, Iowa¹
Southern Maryland Elec. Co-op., Inc., Hughesville, Md.¹
Callaway Elec. Co-op., Fulton, Mo.¹
Union REC, Inc., Marysville, Ohio¹
Oakdale Co-op. Electrical Ass'n., Oakdale, Wis.¹
Pierce-Pepin Elec. Co-op., Ellsworth, Wis.¹
Barron County Elec. Co-op., Barron, Wis.¹
Wyrulec Co., Lingle, Wyo.¹
- Aug. 6:**
Cullman Elec. Co-op., Cullman, Ala.¹
- Aug. 11:**
Delaware Elec. Co-op., Inc., Greenwood, Del.¹
Carroll EMC, Carrollton, Ga.¹
Douglas County EMC, Douglasville, Ga.¹
Harrison County REC, Woodbine, Iowa¹
- Aug. 22:**
San Carlos Irrigation and Drainage Dist., Coolidge, Ariz.⁴
Humboldt County REC, Humboldt, Iowa¹
Franklin REC, Hampton, Iowa¹
East Central Elec. Ass'n., Braham, Minn.¹
Wheatland Rural Elec. Ass'n., Wheatland, Wyo.¹
- Aug. 27:**
Blue Ridge EMC, Lenoir, N.C.¹
- Sept. 3:**
City of Athens, Athens, Ala.²
Steele Waseca Co-op. Elec., Owatonna, Minn.¹
Ralls County ECA, New London, Mo.¹
Ravalli County Elec. Co-op., Inc., Corvallis, Mont.¹
Southwest Tennessee EMC, Brownsville, Tenn.¹
The Middle Tennessee EMC, Murfreesboro, Tenn.¹
Vernon Elec. Co-op., Westby, Wis.¹
- Sept. 21:**
Hendricks County REMC, Danville, Ind.¹
Pella Co-op. Elec. Ass'n., Pella, Iowa¹
City of Holly Springs, Holly Springs, Miss.²
Missouri General Utilities Co., Rolla, Mo.²
Hill County Elec. Co-op., Inc., Itasca, Tex.¹
- Sept. 29:**
Carroll County REMC, Delphi, Ind.¹
Johnson County REMC, Franklin, Ind.¹
Northwest Missouri Elec. Co-op., Savannah, Mo.¹
- Oct. 1:**
Planters EMC, Millen, Ga.¹
Wabash County REMC, Wabash, Ind.¹
Hancock County REMC, Greenfield, Ind.¹
Sun River Elec. Co-op., Inc., Fairfield, Mont.¹
Delaware REC, Inc., Delaware, Ohio¹
Butler REC, Inc., Hamilton, Ohio¹
Cimarron Elec. Co-op., Kingfisher, Okla.¹

See footnotes at end of listing

Oct. 12:

Imperial Irrigation Dist., Imperial, Calif.⁴
Marshall County REMC, Plymouth, Ind.¹
Rush County REMC, Rushville, Ind.¹
Lower Yellowstone Rural Elec. Ass'n.,
Sidney, Mont.¹

Oct. 15:

Tri-County REC, Inc., Mansfield, Pa.¹
Oconto Elec. Co-op., Oconto Falls, Wis.¹

Oct. 20:

Chimney Rock PPD, Bayard, Nebr.⁴
Claverack Elec. Co-op., Inc., Towanda, Pa.¹

Oct. 23:

Wayne County REMC, Richmond, Ind.¹
Noble County REMC, Albion, Ind.¹

Oct. 27:

Howard-Greeley Rural PPD, St. Paul,
Nebr.⁴
Taylor County Elec. Co-op., Medford, Wis.¹

Oct. 30:

Utilities Dist. of Western Indiana REMC,
Bloomfield, Ind.¹
Benton County ECA, Vinton, Iowa.¹
Kingman Elec. Co-op., Kingman, Maine¹
Crow Wing Co-op. P & L Co., Brainerd,
Minn.¹
Freeborn-Mower Co-op. L & P Ass'n.,
Albert Lea, Minn.¹
Vigilante Elec. Co-op., Inc., Dillon, Mont.¹
Missoula Elec. Co-op., Missoula, Mont.¹
Polk County Rural PPD, Stromsburg,
Nebr.⁴
Burt County Rural PPD, Tekamah, Nebr.⁴
Midwest Elec., Inc., St. Marys, Ohio¹
Kay Elec. Co-op., Blackwell, Okla.¹
Sullivan County REC, Inc., Forksville, Pa.¹
Benton Rural Elec. Ass'n., Inc., Prosser,
Wash.¹

Nov. 11:

Grundy County REC, Grundy Center, Iowa¹
Maquoketa Valley REC, Anamosa, Iowa¹
Jewell-Mitchell Co-op. Elec. Co., Inc.,
Mankato, Kans.¹
The Minnesota Valley Elec. Co-op., Jordan,
Minn.¹
Howard ECA, Fayette, Mo.¹
Marion REC, Inc., Marion, Ohio¹

Nov. 13:

Surprise Valley Elect. Corp., Alturas,
Calif.¹
Irwin County EMC, Ocilla, Ga.¹
City of Maquoketa, Maquoketa, Iowa²
Coahoma EPA, Lyon, Miss.¹
Intercounty ECA, Licking, Mo.¹
Oklahoma Elec. Co-op., Norman, Okla.¹
Clearfield Elec. Co-op., Inc., Clearfield, Pa.¹
Gibson County EMC, Trenton, Tenn.¹
City of Bryan, Bryan, Tex.²
Panola-Harrison Elec. Co-op., Inc., Mar-
shall, Tex.¹
Southside Elec. Co-op., Crewe, Va.¹

Nov. 16:

Tri-County EMC, Lafayette, Tenn.¹

Dec. 5:

Greene County REC, Jefferson, Iowa¹
Goodhue County Co-op. Elec. Ass'n., Zum-
brota, Minn.¹
Carlton County Co-op. Power Ass'n., Kettle
River, Minn.¹
Faribault County Co-op. Elec. Ass'n., Frost,
Minn.¹
People's Co-op. Power Ass'n., Inc., Roches-
ter, Minn.¹
Northwestern Elec. Co-op., Inc., Bryan,
Ohio¹
Farmers Elec. Co-op., Inc., Greenville, Tex.¹
Inland P&L Co., Spokane, Wash.¹

Dec. 11:

Brown County Rural Elec. Ass'n., Sleepy
Eye, Minn.¹
South Central Elec. Ass'n., St. James,
Minn.¹
West Oregon Elec. Co-op., Inc., Vernonia,
Oreg.¹

Dec. 24:

Butler County REC, Allison, Iowa¹
Wright County REC, Clarion, Iowa¹
Pocahontas County REC, Pocahontas,
Iowa¹
Lower Valley P&L, Inc., Afton, Wyo.¹

Dec. 29:

Corn Belt Power Co-op., Humboldt, Iowa¹

1937

Jan. 8:

Duck River EMC, Shelbyville, Tenn.¹

Jan. 11:

Buena Vista County REC, Storm Lake,
Iowa¹
Hardin County REC, Iowa Falls, Iowa¹
Cass County Elec. Co-op., Inc., Kindred,
N. Dak.¹

Jan. 29:

Southwest Central RECC, Indiana, Pa.¹

Feb. 1:

Sussex REC, Sussex, N.J.¹

Feb. 3:

Teche Elec. Co-op, Inc., Jeanerette, La.¹
Valley EMC, Natchitoches, La.¹
South Louisiana ECA, Houma, La.¹
Southwest Louisiana EMC, Lafayette, La.¹

Feb. 6:

Salt River RECC, Bardstown, Ky.¹
Central Minnesota Co-op. Power Ass'n. of
Redwood County, Clements, Minn.¹
Alfalfa Elec. Co-op., Inc., Cherokee, Okla.¹

Feb. 12:

Northeast Mississippi EPA, Oxford, Miss.¹
Morrow Elec. Co-op. Inc., Mount Gilead,
Ohio¹
Caddo Elec. Co-op., Binger, Okla.¹
Hunt-Collin Elec. Co-op., Inc., Greenville,
Tex.¹

Feb. 13:

Central Georgia EMC, Jackson, Ga.¹
Union County Elec. Co-op., Elk Point, S.
Dak.¹
Big Horn Rural Elec. Co., Basin, Wyo.¹
Garland L&P Co., Powell, Wyo.¹
Washakie Rural Elec. Co., Worland, Wyo.¹

Feb. 25:

Flint EMC, Reynolds, Ga.¹
Satilla REC, Alma, Ga.¹
Anoka Elec. Co-op., Anoka, Minn.¹
Wright-Hennepin Co-op. Elec. Ass'n.,
Maple Lake, Minn.¹
The Dakota County Elec. Co-op., Farming-
ton, Minn.¹
The Nobles Co-op. Elec., Worthington,
Minn.¹
Dawson County PPD, Lexington, Nebr.⁴
Tuscarawas-Coshocton Elec. Co-op., Inc.,
Coshocton, Ohio¹
North Central Elec. Co-op., Inc., Attica,
Ohio¹

Mar. 4:

Presque Isle Elec. Co-op., Inc., Onaway,
Mich.¹
Darke REC, Inc., Greenville, Ohio¹
Orcas P&L Co., Eastsound, Wash.¹

Mar. 8:

Tri-County Elec. Co-op., Rushford, Minn.¹

Mar. 9:

Baldwin County EMC, Robertsedale, Ala.¹

Clark Elec. Co-op., Greenwood, Wis.¹

Mar. 18:

Clearwater Power Co., Lewiston, Idaho¹
Blachly-Lane County Co-op. Elec. Ass'n.,
Eugene, Oreg.¹
Limestone County Elec. Co-op., Inc., Mart,
Tex.¹

Mar. 19:

Denton County Elec. Co-op., Inc., Denton,
Tex.¹

Mar. 24:

Red River Valley Rural Elec. Assn., Mari-
etta, Okla.¹

Mar. 30:

First ECC, Jacksonville, Ark.¹
Tri-County REC, Inc., Napoleon, Ohio¹
Deaf Smith County Elec. Co-op., Inc.,
Hereford, Tex.¹

Mar. 31:

Morgan County Rural Elec. Ass'n., Fort
Morgan, Colo.¹
Upson County EMC, Thomaston, Ga.¹
Utility Services Co., Hoisington, Kans.⁹

Apr. 5:

Cherokee Elec. Co-op., Centre, Ala.¹
Southeastern Michigan REC, Adrian,
Mich.¹
Thumb Elec. Co-op., Uby, Mich.¹
Tri-County Rural Elec. Co., Inc., Freehold,
N.J.¹

Apr. 8:

The Brown-Atchison ECA, Inc., Horton,
Kans.¹
The D.S. & O. Rural ECA, Inc., Solomon,
Kans.¹
Central EPA, Carthage, Miss.¹
Coast EPA, Bay St. Louis, Miss.¹

Apr. 14:

Eastern Illinois Power Co-op., Paxton, Ill.¹
Pitt & Greene EMC, Farmville, N.C.¹
Licking Rural Elec., Inc., Utica, Ohio¹
Dairyland Power Co-op., La Crosse, Wis.¹

May 3:

Fruit Belt Elec. Co-op., Cassopolis, Mich.¹
Rutherford EMC, Forest City, N.C.¹

May 4:

Quinault Light Co., Quinault, Wash.¹

May 12:

Ocracoke P&L Co., Ocracoke, N.C.³

May 13:

Meade County RECC, Brandenburg, Ky.¹
Jackson Purchase RECC, Paducah, Ky.¹
Lincoln-Union Elec. Co., Alcester, S. Dak.¹

May 15:

Woodruff ECC, Forrest City, Ark.¹

May 19:

PUD No. 1, Cowlitz Co., Longview, Wash.⁴

May 20:

Shelby RECC, Shelbyville, Ky.¹
Green River RECC, Owensboro, Ky.¹
Owen County RECC, Owenton, Ky.¹
Northern Neck Elec. Co-op., Warsaw, Va.¹

May 27:

Farmers ECC, Newport, Ark.¹
Central Valley Elec. Co-op., Artesia, N.
Mex.¹
South Central REC, Lancaster, Ohio¹

June 7:

South Alabama Elec. Co-op., Troy, Ala.¹
Inter-County RECC, Danville, Ky.¹
Southwest Mississippi EPA, Lorman, Miss.¹
Umatilla Elec. Co-op. Ass'n., Hermiston,
Oreg.¹

Town of Bolivar, Bolivar, Tenn.²
Harrison Rural Elect. Ass'n., Inc., Clarks-
burg, W. Va.¹

See footnotes at end of listing.

- July 3:
Arkansas Valley ECC, Ozark, Ark.¹
- July 8:
Blue Grass RECC, Nicholasville, Ky.¹
- July 13:
Jay County REMC, Portland, Ind.¹
Hancock County REC, Garner, Iowa¹
Lake Region Co-op. Elec. Ass'n., Pelican Rapids, Minn.¹
Rural Co-op. Power Ass'n., Elk River, Minn.¹
- July 14:
San Luis Valley REC, Inc., Monte Vista, Colo.¹
Pennyrile RECC, Hopkinsville, Ky.¹
- July 17:
Yazoo Valley EPA, Yazoo City, Miss.¹
- July 21:
Bangor Municipal Utility, Bangor, Wis.²
- July 26:
Southeast Colorado Power Ass'n., La Junta, Colo.¹
Central Elec. Co-op., Inc., Parker, Pa.¹
City of Milan, Milan, Tenn.²
- Aug. 2:
Craighead ECC, Jonesboro, Ark.¹
Plumas-Sierra REC, Inc., Portola, Calif.¹
Stearns Co-op. Elec. Ass'n., Melrose, Minn.¹
- Aug. 6:
Grady County EMC, Cairo, Ga.¹
Washington County EMC, Sandersville, Ga.¹
Jefferson County EMC, Louisville, Ga.¹
Cuming County Rural PPD, West Point, Nebr.⁴
- Aug. 12:
Grant Elec. Co-op., Lancaster, Wis.¹
- Aug. 14:
Fayette-Union County REMC, Liberty, Ind.¹
Fulton County REMC, Rochester, Ind.¹
- Aug. 18:
Southwest Arkansas ECC, Texarkana, Ark.¹
McCulloch County Elec. Co-op., Inc., Brady, Tex.¹
Grayson-Collin Elec. Co-op., Inc., Van Alstyne, Tex.¹
- Aug. 24:
The Kaw Valley Elec. Co-op. Co., Inc., Topeka, Kans.¹
Alger-Delta Co-op. Elec. Ass'n., Gladstone, Mich.¹
Pemiscot-Dunklin Elec. Co-op., Hayti, Mo.¹
Flathead Elec. Co-op., Inc., Kalispell, Mont.¹
Cedar-Knox County Rural PPD, Hartington, Nebr.⁴
Lafayette Elec. Co-op., Darlington, Wis.¹
- Aug. 31:
The Ontonagon County Rural Elec. Ass'n., Ontonagon, Mich.¹
Top O'Michigan Rural Elec. Co., Boyne City, Mich.¹
Overton Power Dist. No. 5, Overton, Nev.⁴
Magic Valley Elec. Co-op., Inc., Mercedes, Tex.¹
- Sept. 8:
Arkansas P&L Co., Pine Bluff, Ark.³
Central Virginia Elec. Co-op., Lovingson, Va.¹
- Sept. 9:
Mitchell County EMC, Camilla, Ga.¹
- Sept. 20:
Jackson County REMC, Brownstown, Ind.¹
- Sept. 28:
Hickman-Fulton Counties RECC, Hickman, Ky.¹
- Upshur RECC, Gilmer, Tex.¹
Bowie-Cass Elec. Co-op., Inc., Douglassville, Tex.¹
Dunn County Elec. Co-op., Menomonie, Wis.¹
- Oct. 5:
Hart County EMC, Hartwell, Ga.¹
- Oct. 14:
Bartholomew County REMC, Columbus, Ind.¹
Ozark Elec. Co-op., Mt. Vernon, Mo.¹
- Oct. 20:
Blue Earth-Nicollet Co-op. Elec. Ass'n., Mankato, Minn.¹
Fannin County Elec. Co-op., Inc., Bonham, Tex.¹
- Oct. 22:
PUD No. 1 Lewis County, Chehalis, Wash.⁴
- Oct. 23:
Barton County Elec. Co-op., Lamar, Mo.¹
McLennan County Elec. Co-op., Inc., McGregor, Tex.¹
Fayette Electric Co-op., Inc., La Grange, Tex.¹
- Oct. 26:
Paulding-Putnam Elec. Co-op., Inc., Paulding, Ohio¹
- Oct. 29:
Carroll ECC, Berryville, Ark.¹
The Sedgwick County ECA, Inc., Cheney, Kans.¹
Doniphan ECA, Inc., Troy, Kans.¹
Navarro County Elec. Co-op., Inc., Corsicana, Tex.¹
- Nov. 4:
South Plains Elec. Co-op., Inc., Lubbock, Tex.¹
- Nov. 15:
Sumter EMC, Americus, Ga.¹
- Nov. 22:
Southwest Rural Elec. Ass'n., Inc., Tipton, Okla.¹
Coleman County Elec. Co-op., Inc., Coleman, Tex.¹
- Dec. 1:
Pamlico Ice & Light Co., Engelhard, N.C.³
Kaufman County Elec. Co-op., Inc., Kaufman, Tex.¹
- Dec. 2:
Firelands Elec. Co-op., Inc., New London, Ohio¹
- Dec. 6:
Farmers' Elec. Co-op., Inc., Clovis, N. Mex.¹
- Dec. 10:
4-County EPA, Columbus, Miss.¹
- 1938
- Jan. 19:
O & A Elec. Co-op., Newaygo, Mich.¹
- Jan. 31:
Carroll Elec. Co-op., Inc., Carrollton, Ohio¹
- Feb. 4:
Illini Elec. Co-op., Champaign, Ill.¹
Wood County Elec. Co-op., Inc., Quitman, Tex.¹
- Feb. 10:
Rusk County Elec. Co-op., Inc., Henderson, Tex.¹
- Feb. 11:
Tallahatchie Valley EPA, Batesville, Miss.¹
Four-County EMC, Burgaw, N.C.¹
- Town of Dickson, Dickson, Tenn.²
Mecklenburg Elec. Co-op., Chase City, Va.¹
- Feb. 15:
Lamar EMC, Barnesville, Ga.¹
Aiken Elec. Co-op., Inc., Aiken, S.C.¹
- Feb. 17:
Scott-New Madrid-Mississippi Co-op. Ass'n., Sikeston, Mo.¹
- Feb. 18:
Clay Elec. Co-op., Inc., Keystone Heights, Fla.¹
Sumter Elec. Co-op., Inc., Sumterville, Fla.¹
Belmont Elec. Co-op., Inc., St. Clairsville, Ohio¹
Peoples Elec. Co-op., Ada, Okla.¹
- Feb. 24:
Shelby Elec. Co-op, Shelbyville, Ill.¹
Deep East Texas Elec. Co-op., Inc., San Augustine, Tex.¹
Jackson Elec. Co-op., Black River Falls, Wis.¹
- Mar. 21:
New York State Elec. & Gas Corp., Ithaca, N.Y.²
- Apr. 12:
West Florida ECA, Inc., Graceville, Fla.¹
- May 27:
Tri-County Elec. Co-op., Inc., Carrington, N. Dak.¹
Guernsey-Muskingum Elec. Co-op., Inc., New Concord, Ohio¹
- June 2:
Pioneer Elec. Co-op., Inc., Greenville, Ala.¹
Cobb County REMC, Marietta, Ga.¹
Kootenai Rural Elec. Ass'n., Inc., Coeur d'Alene, Idaho¹
Washington-St. Tammany Elec. Co-op., Inc., Franklinton, La.¹
- July 7:
Warren County REMC, Williamsport, Ind.¹
LaGrange County REMC, LaGrange, Ind.¹
Parke County REMC, Rockville, Ind.¹
Kosciusko County REMC, Warsaw, Ind.¹
Guthrie County REC Ass'n., Guthrie Center, Iowa¹
Clark RECC, Winchester, Ky.¹
Minnesota Valley Co-op. L & P Ass'n., Montevideo, Minn.¹
Twin County EPA, Hollandale, Miss.¹
Delta EPA, Greenwood, Miss.¹
United REC, Inc., Kenton, Ohio¹
Hancock-Wood Elec. Co-op., Inc., North Baltimore, Ohio¹
B-K Elec. Co-op., Inc., Seymour, Tex.¹
- July 25:
Ocmulgee EMC, Eastman, Ga.¹
Jackson EMC, Jefferson, Ga.¹
Coles-Moultrie Elec. Co-op., Mattoon, Ill.¹
Edgar ECA, Paris, Ill.¹
Adams Electrical Co-op., Camp Point, Ill.¹
Fleming-Mason RECC, Flemingsburg, Ky.¹
Renville-Sibley Co-op. Power Ass'n., Danube, Minn.¹
Fergus Elec. Co-op., Inc., Lewistown, Mont.¹
Vermont Elec. Co-op., Inc., Johnson, Vt.¹
B-A-R-C Elec. Co-op., Millboro, Va.¹
- Aug. 9:
Delta-Montrose Rural Power Lines Ass'n., Delta, Colo.¹
Cloverland Elec. Co-op., Sault Sainte Marie, Mich.¹
- Aug. 18:
Little Ocmulgee EMC, Alamo, Ga.¹
Excelsior EMC, Metter, Ga.¹
Steuben County REMC, Angola, Ind.¹
Taylor County RECC, Campbellsville, Ky.¹
Farmers RECC, Glasgow, Ky.¹

See footnotes at end of listing

Warren RECC, Bowling Green, Ky.¹
Fox Creek RECC, Lawrenceburg, Ky.¹
Harrison County RECC, Cynthiana, Ky.¹
Oceana Elec. Co-op., Hart, Mich.¹
Kandiyohei Co-op. EPA, Willmar, Minn.¹
Southern Pine EPA, Taylorsville, Miss.¹
Atchison-Holt Elec. Co-op., Rockport, Mo.¹
Macon Elec. Co-op., Macon, Mo.¹
Lighthouse Elec. Co-op., Inc., Floydada, Tex.¹
Lamb County Elec. Co-op., Inc., Littlefield, Tex.¹

Sept. 1:

Dixie Elec. Co-op., Union Springs, Ala.¹
St. Croix County Elec. Co-op., Baldwin, Wis.¹

Sept. 12:

Idaho County L&P Ass'n., Inc., Grangeville, Idaho¹
Monroe County Elec. Co-op., Inc., Waterloo, Ill.¹
Decatur County REMC, Greensburg, Ind.¹
Allen-Wells County REMC, Ossian, Ind.¹
Cherryland REC Ass'n., Traverse City, Mich.¹
Pearl River Valley EPA, Columbia, Miss.¹
Ozark Border Elec. Co-op., Poplar Bluff, Mo.¹
Park Elec. Co-op., Inc., Livingston, Mont.¹
Cumberland EMC, Clarksville, Tenn.¹
Powell Valley Elec. Co-op., Jonesville, Va.¹
Crawford Elec. Co-op., Gays Mills, Wis.¹
Eau Claire Elec. Co-op., Eau Claire, Wis.¹

Sept. 16:

Sawnee EMC, Cumming, Ga.¹
Habersham EMC, Clarksville, Ga.¹
Three Notch EMC, Donalsonville, Ga.¹
Jasper County REMC, Rensselaer, Ind.¹
Orange County REMC, Orleans, Ind.¹
Linn County REC Ass'n., Marion, Iowa¹
T.I.P. Rural Elec. Co-op., Brooklyn, Iowa¹
The Western Michigan Elec. Co-op., Scottsville, Mich.¹
Southwestern Minnesota Co-op. Elec., Pipestone, Minn.¹
Consolidated Elec. Co-op., Mexico, Mo.¹
Douglas Elec. Co-op., Inc., Roseburg, Oreg.¹
Cooke County ECA, Muenster, Tex.¹
Garkane Power Ass'n., Inc., Richfield, Utah¹
Moon Lake Elec. Ass'n., Inc., Vernal, Utah¹

Sept. 27:

O'Brien County REC, Primghar, Iowa¹
Pontotoc EPA, Pontotoc, Miss.¹
Capital EPA, Clinton, Miss.¹
Roosevelt County Elec. Co-op., Inc., Portales, N. Mex.¹
Pedernales Elec. Co-op., Inc., Austin, Tex.¹
Central Texas Elec. Co-op., Inc., Fredericksburg, Tex.¹
Northern Piedmont Elec. Co-op., Culpeper, Va.¹
Polk-Burnett Elec. Co-op., Centuria, Wis.¹

Sept. 30:

Intermountain Rural Elec. Ass'n., Littleton, Colo.¹
Cedar Valley Elec. Co-op., St. Ansgar, Iowa¹
Lamar County ECA, Paris, Tex.¹
Johnson County ECA, Cleburne, Tex.¹

Oct. 8:

Blue Ridge Elec. Ass'n., Inc., Young Harris, Ga.¹
Canoochee EMC, Reidsville, Ga.¹
McDonough Power Co-op, Macomb, Ill.¹

Oct. 18:

Ozarks RECC, Fayetteville, Ark.¹
Lyntegar Elec. Co-op., Inc., Tahoka, Tex.¹

Oct. 26:

Pea River Elec. Co-op., Ozark, Ala.¹
Southern Pine Elec. Co-op., Brewton, Ala.¹
D.E.K. Rural Elec. Co-op., Estherville, Iowa¹
Butler County Rural PPD, David City, Nebr.⁴
Roanoke EMC, Rich Square, N.C.¹
Bailey County ECA, Muleshoe, Tex.¹
Erath County ECA, Stephenville, Tex.¹
Hamilton County ECA, Hamilton, Tex.¹

Nov. 3:

Corn Belt Elec. Co-op., Inc., Bloomington, Ill.¹
Wayne County Rural PPD, Wayne, Nebr.⁴
J.A.C. ECA, Bluegrove, Tex.¹

Nov. 9:

Public Service Co. of Indiana, Inc., Indianapolis, Ind.³
The Sumner-Crowley Elec. Co-op., Inc., Wellington, Kans.¹
East Mississippi EPA, Meridian, Miss.¹

Dec. 3:

Clay County ECC, Corning, Ark.¹
Southeastern Illinois Elec. Co-op., Inc., Eldorado, Ill.¹
Tri-County Elec. Co-op., Inc., Mt. Vernon, Ill.¹
Hawkeye Tri-County Elec. Co-op., Cresco, Iowa¹
Buchanan County REC, Independence, Iowa¹
The C & W REC Ass'n., Inc., Clay Center, Kans.¹
Lyon County Elec. Co-op., Inc., Emporia, Kans.¹
Flint Hills REC Ass'n., Inc., Council Grove, Kans.¹
Nolin RECC, Elizabethtown, Ky.¹
Black River Elec. Co-op., Ironton, Mo.¹
Wharton County Elec. Co-op., Inc., El Campo, Tex.¹
Cherokee County ECA, Rusk, Tex.¹
Comanche County ECA, Comanche, Tex.¹

Dec. 12:

Jackson County RECC, McKee, Ky.¹
West Kentucky RECC, Mayfield, Ky.¹
Dixie EPA, Laurel, Miss.¹
Seward County Rural PPD, Seward, Nebr.⁴

Dec. 29:

C & L Rural Elec. Co-op., Star City, Ark.¹
Western Illinois Electrical Co-op., Carthage, Ill.¹
Harrison County REMC, Corydon, Ind.¹
Pointe Coupee EMC, New Roads, La.¹
Tishomingo County EPA, Iuka, Miss.¹
Tri-County ECA, Lancaster, Mo.¹
Platte-Clay Elec. Co-op., Inc., Platte City, Mo.¹
York County Rural PPD, York, Nebr.⁴
Northeast Nebraska Rural PPD, Emerson, Nebr.⁴
Upper Cumberland EMC, Carthage, Tenn.¹
Greenbelt Elec. Co-op., Inc., Wellington, Tex.¹
Midwest Elec. Co-op., Inc., Roby, Tex.¹
Hall County Elec. Co-op., Inc., Memphis, Tex.¹
Riverton Valley Elec. Ass'n., Inc., Riverton, Wyo.¹

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Jan. 10:

Piedmont EMC, Hillsboro, N.C.¹
Halifax EMC, Enfield, N.C.¹
Pee Dee EMC, Wadesboro, N.C.¹
Davidson EMC, Lexington, N.C.¹
Randolph EMC, Asheboro, N.C.¹
Davie EMC, Mocksville, N.C.¹
Harkers Island EMC, Harkers Island, N.C.¹

Jan. 31:

Lyon REC, Rock Rapids, Iowa¹
Winnebago REC Ass'n., Thompson, Iowa¹
Woodbury County EMC Ass'n., Moville, Iowa¹

Cherokee County REC, Cherokee, Iowa¹
The Coffey County REC Ass'n., Inc., Burlington, Kans.¹
Choptank Elec. Co-op., Inc., Denton, Md.¹
Magnolia EPA, McComb, Miss.¹
Osage Valley ECA, Butler, Mo.¹
Elkhorn Rural PPD, Battle Creek, Nebr.⁴
Central Missouri Elec. Co-op., Inc., Sedalia, Mo.¹
Northeast Oklahoma Elec. Co-op., Inc., Vinita, Okla.¹
Karnes Elec. Co-op., Inc., Karnes City, Tex.¹

Feb. 20:

Mississippi County Elec. Co-op., Inc., Blytheville, Ark.¹
Egyptian ECA, Steeleville, Ill.¹
Spoon River Elec. Co-op., Inc., Canton, Ill.¹
Dixie EMC, Baton Rouge, La.¹
Red River Valley Co-op. Power Ass'n., Halstad, Minn.¹
Red Lake Elec. Co-op., Inc., Red Lake Falls, Minn.¹
Agra-Lite Co-op., Benson, Minn.¹
Farmers' Elec. Co-op., Inc., Chillicothe, Mo.¹
Grundy Elec. Co-op., Inc., Trenton, Mo.¹
Stanton County Rural PPD, Stanton, Nebr.⁴
Cotton Elec. Co-op., Walters, Okla.¹
Verdigris Valley Elec. Co-op., Inc., Collinsville, Okla.¹
San Patricio Elec. Co-op., Inc., Sinton, Tex.¹
DeWitt County Elec. Co-op., Inc., Cuero, Tex.¹
Victoria County Elec. Co-op. Co., Victoria, Tex.¹

Mar. 11:

Norris Elec. Co-op., Newton, Ill.¹
Southern Illinois Elec. Co-op., Dongola, Ill.¹
Plymouth ECA, Le Mars, Iowa¹
Ida County REC, Ida Grove, Iowa¹
Rural Elec. Co-op., Inc., Lindsay, Okla.¹
Harmon Elec. Ass'n., Inc., Hollis, Okla.¹
Bandera Elec. Co-op., Inc., Bandera, Tex.¹
Medina Elec. Co-op., Inc., Hondo, Tex.¹
Adams-Marquette Elec. Co-op., Friendship, Wis.¹

Mar. 22:

Black Warrior EMC, Demopolis, Ala.¹
Central Alabama Elec. Co-op., Prattville, Ala.¹
Fall River REC, Inc., Ashton, Idaho¹
Sullivan County REMC, Sullivan, Ind.¹
Sac County REC, Sac City, Iowa¹
Allamakee-Clayton Elec. Co-op., Inc., Postville, Iowa¹
Louisiana Ice & Elec. Co., Inc., Alexandria, La.³
Union EMC, Monroe, N.C.¹
Nodak REC, Inc., Grand Forks, N. Dak.¹
Buckeye Rural Elec. Co-op., Inc., Gallipolis, Ohio¹
Northfork Elec. Co-op., Inc., Sayre, Okla.¹
Kiwash Elec. Co-op., Inc., Cordell, Okla.¹
East Central Oklahoma Elec. Co-op., Inc., Okmulgee, Okla.¹
Central REC, Stillwater, Okla.¹
Valley REC, Inc., Huntington, Pa.¹
Nueces Elec. Co-op., Inc., Robstown, Tex.¹
Guadalupe Valley Elec. Co-op., Inc., Gonzales, Tex.¹
Jump River Elec. Co-op., Ladysmith, Wis.¹

Mar. 31:

Northeast Louisiana Power Co-op., Inc., Winnboro, La.¹
Laclede Elec. Co-op., Lebanon, Mo.¹

Apr. 12:

Miami-Cass County REMC, Peru, Ind.¹
S.E. Iowa Co-op. Elec. Ass'n., Mt. Pleasant, Iowa¹
Haywood EMC, Waynesville, N.C.¹

Apr. 18:

Union Rural Elec. Ass'n., Inc., Brighton, Colo.¹
Southeastern Indiana REMC, Osgood, Ind.¹

See footnotes at end of listing.

- May 2:**
Tallapoosa River Elec. Co-op., Lafayette, Ala.¹
Co-Mo Elec. Co-op., Inc., Tipton, Mo.¹
City of Greenville, Greenville, N.C.²
Wise Elec. Co-op., Inc., Decatur, Tex.¹
Tri-County Elec. Co-op., Inc., Azle, Tex.¹
Rural Elec. Co., Pine Bluffs, Wyo.¹
- May 11:**
Singing River EPA, Lucedale, Miss.¹
Brunswick EMC, Shallotte, N.C.¹
Laurens Elec. Co-op., Inc., Laurens, S.C.¹
- May 13:**
Mountain Empire Elec. Co-op., Inc., Campo, Calif.¹
Highline Elec. Ass'n., Holyoke, Colo.¹
Knox County REMC, Vincennes, Ind.¹
Tipmont REMC, Linden, Ind.¹
Clark County REMC, Sellersburg, Ind.¹
Nemaha-Marshall ECA, Inc., Axtell, Kans.¹
Ninnesah REC Ass'n., Inc., Pratt, Kans.¹
Claiborne Elec. Co-op., Inc., Homer, La.¹
Consumers Power, Inc., Corvallis, Oreg.¹
PUD No. 1 of Kittitas County, Ellensburg, Wash.⁴
- May 18:**
Stonewall Elec. Co., Trinidad, Colo.³
Sulphur Springs Valley Elec. Co-op., Inc., Willcox, Ariz.¹
San Miguel Power Ass'n., Inc., Nucla, Colo.¹
Illinois Valley Elec. Co-op., Inc., Princeton, Ill.¹
Davies-Martin County REMC, Washington, Ind.¹
Kankakee Valley REMC, Wanatah, Ind.¹
Osceola Elec. Co-op., Inc., Sibley, Iowa¹
The Butler REC Ass'n., Inc., El Dorado, Kans.¹
The Norton-Decatur Co-op. Elec. Co., Inc., Norton, Kans.¹
The N. C. K. Elec. Co-op., Inc., Belleville, Kans.¹
The Ark Valley ECA, Inc., Hutchinson, Kans.¹
South Kentucky RECC, Somerset, Ky.¹
Bossier REMC, Bossier City, La.¹
Meriwether-Lewis Elec. Co-op., Centerville, Tenn.¹
- May 29:**
New-Mac Elec. Co-op., Inc., Neosho, Mo.¹
- May 31:**
Pickwick Elec. Co-op., Selmer, Tenn.¹
Tennessee Valley Elec. Co-op., Savannah, Tenn.¹
- June 10:**
Bedford REC, Inc., Bedford, Pa.¹
- June 13:**
Suwannee Valley Elec. Co-op., Inc., Live Oak, Fla.¹
Lynchs River Elec. Co-op., Inc., Pageland, S.C.¹
- June 19:**
M.J.M. Elec. Co-op., Inc., Carlinville, Ill.¹
Jo-Carroll Elec. Co-op., Inc., Elizabeth, Ill.¹
Mid-Yellowstone Elec. Co-op., Inc., Hysham, Mont.¹
Somerset REC, Inc., Somerset, Pa.¹
Fairfield Elec. Co-op., Inc., Winnsboro, S.C.¹
Stamford Elec. Co-op., Inc., Stamford, Tex.¹
Bridger Valley Elec. Ass'n., Inc., Mountain View, Wyo.¹
- June 30:**
Ouachita RECC, Camden, Ark.¹
Southwestern Elec. Co-op., Inc., Greenville, Ill.¹
Jefferson Elec. Co-op., Inc., Brookville, Pa.¹
Edisto Elec. Co-op., Inc., Bamberg, S.C.¹
Sheridan Suburban Elec. Co., Sheridan, Wyo.³
- July 14:**
Clinton County Elec. Co-op., Inc., Breese, Ill.¹
Farmers' Elec. Co-op., Inc., Greenfield, Iowa¹
West River Elec. Ass'n., Inc., Wall, S. Dak.¹
- Aug. 1:**
Escambia River Elec. Co-op., Inc., Jay, Fla.¹
The Sekan ECA, Inc., Girard, Kans.¹
Marion Elec. Co-op., Inc., Marion, S.C.¹
Sioux Valley Empire Elec. Ass'n., Inc., Colman, S. Dak.¹
Lower Colorado River Elec. Co-op., Inc., Austin, Tex.¹
- Aug. 16:**
The Oconee EMC, Dudley, Ga.¹
White County REMC, Monticello, Ind.¹
Northern ECA, Virginia, Minn.¹
Knoxville Elec. Power & Water Board, Knoxville, Tenn.²
- Aug. 23:**
Jackson Elec. Co-op., Inc., Edna, Tex.¹
Columbia Rural Elec. Ass'n., Inc., Dayton, Wash.¹
- Sept. 8:**
Newton County REMC, Kentland, Ind.¹
Lyon-Lincoln Elec. Co-op., Inc., Tyler, Minn.¹
Wild Rice Elec. Co-op., Inc., Mahanomen, Minn.¹
Jones-Onslow EMC, Jacksonville, N.C.¹
Verendrye Elec. Co-op., Inc., Velva, N. Dak.¹
Warren Elec. Co-op., Inc., Youngsville, Pa.¹
Fort Belknap Elec. Co-op., Inc., Olney, Tex.¹
Washington Elec. Co-op., Inc., East Montpelier, Vt.¹
- Sept. 27:**
Raft River Rural Elec. Co-op., Inc., Malta, Idaho¹
Three Rivers Elec. Co-op., Linn, Mo.¹
Southwest Elec. Co-op., Bolivar, Mo.¹
Prince George Elec. Co-op., Waverly, Va.¹
Stevens County Elec. Co-op., Inc., Colville, Wash.¹
- Oct. 5:**
Community Cold Storage Ass'n., Inc., Camilla, Ga.¹
- Oct. 6:**
Poudre Valley Rural Elec. Ass'n., Inc., Fort Collins, Colo.¹
Farm-Home Elec. Co-op., Inc., Patten, Maine¹
Community Elec. Co-op., Windsor, Va.¹
- Oct. 17:**
Okefenokee REMC, Nahunta, Ga.¹
Sam Houston Elec. Co-op., Inc., Livingston, Tex.¹
Lone Wolf Elec. Co-op., Inc., Colorado City, Tex.¹
- Oct. 27:**
New Hampshire Elec. Co-op., Inc., Plymouth, N.H.¹
- Nov. 6:**
Coosa Valley Elec. Co-op., Inc., Talladega, Ala.¹
Morgan County REMC, Martinsville, Ind.¹
Howell-Oregon Elec. Co-op., Inc., West Plains, Mo.¹
Coos-Curry Elec. Co-op., Inc., Coquille, Oreg.¹
Okanogan County Elec. Co-op., Inc., Winthrop, Wash.¹
Big Bend Elec. Co-op., Inc., Ritzville, Wash.¹
- Nov. 16:**
Tombigbee EPA, Tupelo, Miss.¹
- Nov. 22:**
Wiregrass Elec. Co-op., Inc., Hartford, Ala.¹
Board of Public Utilities, Paris, Tenn.²
Weakley County Munic. Elec. System, Martin, Tenn.²
- Nov. 24:**
Berkeley Elec. Co-op., Inc., Moncks Corner, S.C.¹
Pee Dee Elec. Co-op., Inc., Darlington, S.C.¹
Marlboro Elec. Co-op., Inc., Bennettsville, S.C.¹
Santee Elec. Co-op., Inc., Kingstree, S.C.¹
- Dec. 9:**
Natchez Trace EPA, Houston, Miss.¹
- Dec. 21:**
Central Florida Elec. Co-op., Inc., Chiefland, Fla.¹
Beauregard Elec. Co-op., Inc., DeRidder, La.¹
- 1940
- Jan. 5:**
North Arkansas ECC, Salem, Ark.¹
Tri-County Elec. Co-op., Leesburg, Va.¹
- Jan. 13:**
Otero County Elec. Co-op., Inc., Cloudcroft, N. Mex.¹
Malheur Co-op. Elec. Ass'n., Vale, Oreg.¹
- Feb. 2:**
Southeastern Elec. Co-op., Durant, Okla.¹
- Mar. 11:**
Tri-County EMC, Gray, Ga.¹
Slash Pine EMC, Homerville, Ga.¹
White River Valley Elec. Co-op., Inc., Branson, Mo.¹
- Mar. 23:**
Itasca-Mantrap Co-op. Elec. Ass'n., Park Rapids, Minn.¹
- Apr. 30:**
Jordan Valley Elec. Co-op., Inc., Jordan Valley, Oreg.¹
- May 18:**
Virgin Islands Co., Christiansted, St. Croix, V.I.²
- July 1:**
North Alabama Elec. Co-op., Stevenson, Ala.¹
Sand Mountain Elec. Co-op., Ft. Payne, Ala.¹
Joe Wheeler EMC, Hartselle, Ala.¹
City of Sheffield, Sheffield, Ala.²
San Isabel Elec. Ass'n., Inc., Pueblo, Colo.¹
La Plata Elec. Ass'n., Inc., Durango, Colo.¹
Middle George EMC, Vienna, Ga.¹
Lost River Elec. Co-op., Inc., Mackay, Idaho¹
Dairyland Elec. Co-op., Inc., Grand Rapids, Minn.¹
West Central Elec. Co-op., Inc., Higginsville, Mo.¹
Nodaway-Worth Elec. Co-op., Inc., Maryville, Mo.¹
Ecartooth Elec. Co-op., Inc., Red Lodge, Mont.¹
French Broad EMC, Marshall, N.C.¹
Minnkota Power Co-op., Inc., Grand Forks, N. Dak.¹
Lane County Elec. Co-op., Eugene, Oreg.¹
Black River Elec. Co-op., Inc., Sumter, S.C.¹
Coastal Elec. Co-op. Inc., Walterboro, S.C.¹
Carroll County Board of Public Utilities, Huntingdon, Tenn.²
Holston Elec. Co-op., Inc., Rogersville, Tenn.¹
Houston County Elec. Co-op., Inc., Crockett, Tex.¹

See footnotes at end of listing.

Gate City Elec. Co-op., Inc., Childress, Tex.¹
Cap Rock Elec. Co-op., Inc., Stanton, Tex.¹
Swisher County Elec., Co-op., Inc., Tulia,
Tex.¹
PUD No. 1 of Klickitat County, Golden-
dale, Wash.¹

July 11:
Empire Elec. Ass'n., Inc., Cortez, Colo.¹
Cornelius EMC, Cornelius, N.C.¹

July 13:
Lincoln Elec. Co-op., Inc., Davenport,
Wash.¹

July 16:
Central Elec. Co-op., Inc., Redmond, Oreg.¹
Taylor Elec. Co-op., Inc., Merkel, Tex.¹
San Bernard Elec. Co-op., Inc., Bellville,
Tex.¹

July 17:
Big Horn County Elec. Co-op., Inc., Lodge
Grass, Mont.¹
Nespelem Valley Elec. Co-op., Inc., Nes-
pelem, Wash.¹

July 29:
Dubois Rural Elec. Co-op., Inc., Jasper, Ind.¹
Southern Indiana REC, Inc., Tell City, Ind.¹

Aug. 2:
The P.R. & W. ECA, Inc., Wamego, Kans.¹

Aug. 6:
Appalachian Elec. Co-op., Jefferson City,
Tenn.¹

Aug. 7:
Lee County Elec. Co-op., Inc., Fort Myers,
Fla.¹

Amicalola EMC, Jasper, Ga.¹
Lumbec River EMC, Red Springs, N.C.¹
Indian Elec. Co-op., Inc., Cleveland, Okla.¹
Wasco Elec. Co-op., Inc., The Dalles, Oreg.¹

Aug. 8:
Wake EMC, Wake Forest, N.C.¹
Surry-Yadkin EMC, Dobson, N.C.¹
Tri-County EMC, Goldsboro, N.C.¹
South River EMC, Dunn, N.C.¹
Fort Loudoun Elec. Co-op., Madisonville,
Tenn.¹

Aug. 12:
North Pine Elec. Co-op., Inc., Finlayson,
Minn.¹

Aug. 14:
Tri-County Elec. Co-op., Inc., Madison, Fla.¹

Aug. 20:
Holy Cross Elec. Ass'n., Inc., Glenwood
Springs, Colo.¹

Aug. 24:
Sandy Elec. Co-op., Sandy, Oreg.¹

Aug. 28:
Newberry Elec. Co-op., Inc., Newberry,
S.C.¹
Little River Elec. Co-op., Inc., Abbeville,
S.C.¹

Sept. 12:
Coastal EMC, Midway, Ga.¹
Todd-Wadena Elec. Co-op., Wadena, Minn.¹
Tri-County Elec. Co-op., Inc., St. Matthews,
S.C.¹
Mid-Carolina Elec. Co-op., Inc., Lexington,
S.C.¹

Sept. 14:
Concho Valley Elec. Co-op., Inc., San An-
gelo, Tex.¹

Sept. 26:
Central Kansas Elec. Co-op., Inc., Great
Bend, Kans.¹
Butte Elec. Co-op., Inc., Newell, S. Dak.¹
Halifax Elec. Co-op., Inc., Brattleboro, Vt.¹

Oct. 2:
Peace River Valley EMC, Inc., Wauchula,
Fla.¹
Pataula EMC, Cuthbert, Ga.¹
Southern Iowa Elec. Co-op., Inc., Bloom-
field, Iowa¹
Clarke Elec. Co-op., Inc., Osceola, Iowa¹
North Central Missouri Elec. Co-op., Inc.,
Milan, Mo.¹
Broad River Elec. Co-op., Inc., Gaffney,
S.C.¹

Oct. 4:
Big Sandy RECC, Paintsville, Ky.¹
Washington Elec. Co-op., Inc., Marietta,
Ohio¹

Oct. 7:
Traverse Elec. Co-op., Inc., Wheaton, Minn.¹
Adams Elec. Co-op., Inc., Gettysburg, Pa.¹

Oct. 21:
Price Elec. Co-op., Inc., Phillips, Wis.¹

Oct. 30:
Gunnison County Elec. Ass'n., Inc., Crested
Butte, Colo.¹
Yampa Valley Elec. Ass'n., Inc., Steamboat
Springs, Colo.¹
Nyman Elec. Co-op., Inc., Stanton, Iowa¹
Licking Valley RECC, West Liberty, Ky.¹
Crawford Elec. Co-op., Inc., Bourbon, Mo.¹

Oct. 31:
North Star Elec. Co-op., Inc., Baudette,
Minn.¹

Nov. 2:
Sac-Osage Elec. Co-op., Inc., El Dorado
Springs, Mo.¹

Nov. 20:
Prairie Power Co-op., Inc., Fairfield, Idaho¹
Horry Elec. Co-op., Inc., Conway, S.C.¹
Sequachee Valley Elec. Co-op., South Pitts-
burg, Tenn.¹

Nov. 25:
Blue Ridge Elec. Co-op., Inc., Pickens, S.C.¹
City of La Follette, La Follette, Tenn.²

Dec. 6:
Cumberland Valley RECC, Corbin, Ky.¹
Caney Fork Elec. Co-op., Inc., McMinn-
ville, Tenn.¹

Dec. 19:
Central Elec. Refrig. Co-op., Grove Hill,
Ala.¹
Talquin Elec. Co-op., Inc., Quincy, Fla.¹
Choctawhatchee Elec. Co-op., Inc., De Fu-
niak Springs, Fla.¹
Long Valley Power Co-op, Inc., Donnelly,
Idaho¹
Burke-McDowell EMC, Morganton, N.C.¹
Carteret-Craven EMC, Morehead City, N.C.¹
Canadian Valley Elec. Co-op., Inc., Semin-
ole, Okla.¹
Salkehatchie Elec. Co-op., Inc., Barnwell,
S.C.¹

1941

Jan. 16:
Clay Elec. Co-op., Inc., Flora, Ill.¹
Stonewall Elec. Co., Albuquerque, N. Mex.³
Choctaw Elec. Co-op., Inc., Hugo, Okla.¹
Northwestern Elec. Co-op., Inc., Woodward,
Okla.¹
The Newport Elec. System, Newport, Tenn.²
Forked Deer Elec. Co-op., Inc., Halls, Tenn.¹
Chickasaw Elec. Co-op., Inc., Somerville,
Tenn.¹

Jan. 27:
Pamlico-Beaufort EMC, Grantsboro, N.C.¹
Accomack-Northampton Elec. Co-op.,
Parksley, Va.¹

Feb. 8:
Eastern Maine Elec. Co-op., Inc., Calais,
Maine¹

Union River Elec. Co-op., Inc., Aurora,
Maine¹
Adams REC, Inc., West Union, Ohio¹

Feb. 17:
North Itasca Elec. Co-op., Inc., Bigfork,
Minn.¹
Beltrami Elec. Co-op., Inc., Bemidji, Minn.¹
Chelan County Elec. Co-op., Inc., Leaven-
worth, Wash.¹

Feb. 28:
Alamo Power Dist. No. 3, Alamo, Nev.⁴

Mar. 8:
Brazos Elec. Power Co-op., Inc., Waco, Tex.¹

Mar. 11:
Farmers Elec. Generating Co-op., Inc., Gil-
mer, Tex.¹

Mar. 17:
Whetstone Valley Elec. Co-op., Inc., Mil-
bank, S. Dak.¹
Waushara County Elec. Co-op., Inc., Wau-
toma, Wis.¹

Apr. 10:
South Central Arkansas Elec. Co-op., Inc.,
Arkadelphia, Ark.¹
Florida Keys ECA, Inc., Tavernier, Fla.¹
Concordia Elec. Co-op., Inc., Ferriday, La.¹
Palmetto Elec. Co-op., Inc., Ridgeland, S.C.¹
Mountain Elec. Co-op., Inc., Mountain City,
Tenn.¹
Mid-South ECA, Navasota, Tex.¹
Bayfield Elec. Co-op., Inc., Iron River, Wis.¹
Matanuska Elec. Ass'n., Inc., Palmer,
Alaska¹

May 13:
KAMO Elec. Co-op., Inc., Vinita, Okla.¹
R.S.R. Elec. Co-op., Inc., Milnor, N. Dak.¹

May 16:
Texas Elec. Co-op., Inc., Austin, Tex.¹

June 12:
Black Hills, Elec. Co-op., Inc., Custer, S
Dak.¹

June 26:
Ark-La Elec. Co-op., Inc., Bossier, La.¹

July 23:
Tombigbee Elec. Co-op., Inc., Guin, Ala.¹
Rideta Elec. Co-op., Inc., Mount Ayr, Iowa¹
P.K.M. Elec. Co-op., Inc., Warren, Minn.¹
McCook PPD, McCook, Nebr.⁴
Western Farmers Elec. Co-op., Inc., Ana-
darko, Okla.¹
Washington Island Elec. Co-op., Inc., Wash-
ington Island, Wis.¹
Hot Springs County Rural Elec. Ass'n., Inc.,
Thermopolis, Wyo.¹
Kodiak Elcc. Assn., Inc., Kodiak, Alaska¹

Aug. 4:
Riceland Elec. Co-op., Inc., Stuttgart, Ark.¹
Ashley-Chicot Elec. Co-op., Inc., Hamburg,
Ark.¹
Sangre De Cristo Elec. Ass'n., Inc., Salida
Colo.¹

Tri-County REMC, Poland, Ind.¹
Roseau Elec. Co-op., Inc., Roseau, Minn.¹
Cuivre River Elec. Co-op., Inc., Troy, Mo.¹
York County Elec. Co-op., Inc., York, S.C.¹
Elec. Co-op. Refrig. Co., Inc., York, S.C.¹
New Era Elec. Co-op., Inc., Athens, Tex.¹
Beaver Valley Rural Elec. Ass'n., Beaver
City, Utah¹

Sept. 23:
Alabama Elec. Co-op., Inc., Andalusia, Ala.¹
H-D Elec. Co-op., Clear Lake, S. Dak.¹

Oct. 7:
Carbon P & L, Inc., Saratoga, Wyo.¹

Oct. 9:
East Kentucky RECC, Winchester, Ky.¹

See footnotes at end of listing.

Oct. 15:
Mountain View Elec. Ass'n., Inc., Limon,
Colo.¹
South Mississippi EPA, Collins, Miss.¹
Mora-San Miguel Elec. Co-op., Inc., Mora,
N. Mex.¹
Otsego Elec. Co-op., Inc., Hartwick, N.Y.¹
Delaware County Elec. Co-op., Inc., Delhi,
N.Y.¹
Steuben REC, Inc., Bath, N.Y.¹
Genesee Valley Elec. Co-op., Inc., Belmont,
N.Y.¹

Oct. 29:
Sugar Valley ECA, Inc., Mound City, Kans.²
Dickens County Elec. Co-op., Inc., Spur,
Tex.¹

Nov. 10:
The Smoky Valley ECA, Inc., Lindsborg,
Kans.¹
Leavenworth-Jefferson Elec. Co-op., Inc.,
McLouth, Kans.¹
City of Wilson, Wilson, N.C.²
North Central Elec. Co-op., Inc., Bottineau,
N. Dak.¹
Codrington-Clark Elec. Co-op., Inc., Water-
town, S. Dak.¹
Northern Elec. Co-op., Inc., Aberdeen, S.
Dak.¹
Plateau Elec. Co-op., Oneida, Tenn.¹
Lincoln County EMC, Fayetteville, Tenn.¹
Kimble Elec. Co-op., Inc., Junction, Tex.¹

Nov. 14:
Chautauqua-Cattaraugus Elec. Co-op., Inc.,
Cherry Creek, N.Y.¹
Oneida-Madison Elec. Co-op., Inc., Bouck-
ville, N.Y.¹

Dec. 9:
Georgia EMC, Millen, Ga.¹

Dec. 19:
Marshall-DeKalb Elec. Co-op., Boaz, Ala.¹
PUD No. 2 of Grant Co., Ephrata, Wash.⁴

1942

Jan. 23:
Petit Jean ECC, Clinton, Ark.¹

May 19:
Shoshone River Power, Inc., Cody, Wyo.¹

June 13:
Big Flat Elec. Co-op., Inc., Malta, Mont.¹
Sheridan County Elec. Co-op., Inc., Medi-
cine Lake, Mont.¹
Northern Elec. Co-op., Inc., Opheim, Mont.¹
Sho-Me Power Corp., Marshfield, Mo.¹

1943

Apr. 1:
PUD No. 1 of Callam County, Port An-
geles, Wash.⁴

June 8:
Jasper-Newton Elec. Co-op., Inc., Kirby-
ville, Tex.¹

Sept. 20:
Kit Carson Elcc. Co-op., Inc., Taos, N.
Mex.¹

Nov. 3:
Gladewater Elcc. Refrig. Co-op., Inc.,
Gladewater, Tex.¹
Upshur Elec. Refrig. Co-op., Inc., Gilmer,
Tex.¹

Nov. 20:
Farmers Elec. Refrig. Co-op., Inc., Emory,
Tex.¹

Dec. 21:
Cap Rock Refrig. Co-op., Inc., Stanton, Tex.¹

Dec. 22:
Taylor Refrig. Co-op., Inc., Merkel, Tex.¹

1944

Mar. 4:
Hill County Refrig. Co-op., Inc., Itasca,
Tex.¹

Apr. 3:
Mountain Refrig. Co-op., Inc., Hot Springs,
Va.¹

Apr. 10:
The Pioneer Co-op. Ass'n., Inc., Ulysses,
Kans.¹

May 2:
Citizens Elec. Corp., Ste. Genevieve, Mo.¹

May 6:
Trenton Refrig. Co-op., Inc., Trenton, Tex.¹
Shelby County Refrig. Co-op., Inc., Center,
Tex.¹

May 13:
Jefferson Davis Elec. Co-op., Inc., Jennings,
La.¹

May 17:
Claiborne Elec. Refrig. Co-op., Inc., Homer,
La.¹
Flowell Elec. Ass'n., Inc., Fillmore, Utah.¹

June 5:
North Plains Elec. Co-op., Inc., Perryton,
Tex.¹

June 6:
Twin Valleys PPD, Cambridge, Nebr.⁴

June 16:
Woodstock EMC, Belhaven, N.C.¹

June 21:
Southside Refrig. Co-op., Inc., Crewe, Va.¹

July 1:
Bowie-Cass Refrig. Co-op., Inc., Douglas-
ville, Tex.¹
Collin County Refrig. Co-op., Inc., Wylie,
Tex.¹

July 29:
Union Elec. Refrig. Co-op., Inc., Farmer-
ville, La.¹
Camp Refrig. Co-op., Inc., Pittsburg, Tex.¹
Lometa Refrig. Co-op., Inc., Lometa, Tex.¹

Aug. 8:
Mt. Vernon Elec. Refrig. Co-op., Inc., Mt.
Vernon, Mo.¹
Brazos Valley Refrig. Co-op., Bellville
Tex.¹

Aug. 14:
Edgefield Elec. Refrig. Co-op., Inc., Edge-
field, S.C.¹

Oct. 2:
Mart Refrig. Co-op., Inc., Mart, Tex.¹
Limestone Refrig. Co-op., Inc., Groesbeck,
Tex.¹

Nov. 6:
Littlefield Elec. Co-op., Inc., Littlefield,
Ariz.¹

Nov. 14:
Valley Elec. Co-op., Inc., Glasgow, Mont.¹
PUD No. 1 of Douglas County, East We-
natchee, Wash.⁴

Nov. 21:
Laurens Elcc. Refrig. Co-op., Inc., Laurens,
S.C.¹

Nov. 28:
Sierra Elcc. Co-op., Inc., Truth or Conse-
quences, N. Mex.¹

Dec. 8:
Southwest Texas Elcc. Co-op., Inc., Eldo-
rado, Tex.¹

Dec. 20:
Central EMC, Sanford, N.C.¹

1945

Feb. 17:
Lake Region Elec. Ass'n., Inc., Webster,
S. Dak.¹

Feb. 23:
Ocracoke EMC, Ocracoke, N.C.¹

Mar. 9:
Socorro Elec. Co-op., Inc., Socorro, N. Mex.¹

April 7:
Turner-Hutchinson Elec. Co-op., Inc., Ma-
rion, S. Dak.¹

April 18:
Old Capital Elec. Refrig. MC, Corydon, Ind.¹

May 14:
Escalante Valley Elec. Ass'n., Inc., Beryl,
Utah¹

May 23:
Springer Elec. Co-op., Inc., Springer, N.
Mex.¹

May 24:
Albermarle EMC., Hertford, N.C.¹

May 31:
Glades Elec. Co-op., Inc., Moore Haven, Fla.¹

June 1:
Gulf Coast Elec. Co-op., Inc., Wewahitchka,
Fla.¹
The Midwest EMC, Grant, Nebr.¹

June 14:
Powhatan Refrig. Co-op., Inc., Clayville,
Va.¹
Free State Refrig. Co-op., Inc., Kenbridge,
Va.¹

June 18:
Covington Elec. Co-op., Inc., Andalusia,
Ala.¹
The Caney Valley ECA, Inc., Cedar Vale,
Kans.¹
Custer PPD, Broken Bow, Nebr.⁴

June 23:
Sheridan-Johnson Rural Elec. Ass'n., Sheri-
dan, Wyo.¹

June 26:
Rich Mountain Elec. Co-op., Inc., Mena,
Ark.¹
Goldenwest Elcc. Co-op., Inc., Wibaux,
Mont.¹
Robertson Elec. Co-op., Inc., Franklin, Tex.¹

June 30:
The Victory ECA, Inc., Dodge City, Kans.¹

July 14:
McCone Elec. Co-op., Inc., Circle, Mont.¹
Sheyenne Valley Elec. Co-op., Inc., Finley,
N. Dak.¹

Aug. 1:
Withlacoochee River Elcc. Co-op., Inc., Dade
City, Fla.¹

Aug. 11:
The Radiant Elec. Co-op., Inc., Fredonia,
Kans.¹
Cape Hatteras EMC, Buxton, N.C.¹

Aug. 21:
Chariton Valley Elec. Co-op., Inc., Albia,
Iowa¹

Sept. 1:
Panhandle Rural Elec. Memb. Ass'n., Alli-
ance, Nebr.¹
PUD No. 1 of Ferry County, Republic,
Wash.⁴

See footnotes at end of listing.

Sept. 4:
North Central Nebraska Rural PPD,
Creighton, Nebr.⁴

Sept. 19:
Intercounty Elec. Ass'n., Inc., Mitchell, S.
Dak.¹

Beadle Elec. Co-op., Inc., Huron, S. Dak.¹
Spink Elec. Co-op., Inc., Redfield, S. Dak.¹

Sept. 26:
Mountrail Elec. Co-op., Stanley, N. Dak.¹
McLean Elec. Co-op., Inc., Garrison, N.
Dak.¹

Oct. 1:
The Western Co-op. Elec. Ass'n., Inc., Wa-
keene, Kans.¹

Oct. 16:
Southwestern Federated Power Co-op., Inc.,
Creston, Iowa¹
Twin Valley Elec. Co-op., Inc., Altamont,
Kans.¹

Oct. 30:
Franklin Elec. Co-op., Russellville, Ala.¹

Nov. 2:
Dixie Rural Elec. Ass'n., St. George, Utah¹

Nov. 7:
Tri-County Refrig. Co-op., Inc., Eddy, Tex.¹
Valley Mills Refrig. Co-op., Inc., Valley
Mills, Tex.¹

Nov. 8:
James Valley Elec. Co-op., Inc., Edgeley,
N. Dak.¹
Williams Elec. Co-op., Inc., Williston, N.
Dak.¹
McKenzie Elec. Co-op., Inc., Watford City,
N. Dak.¹

Nov. 16:
The C.M.S. Elec. Co-op., Inc., Meade, Kans.¹

Nov. 30:
Columbia Basin Elec. Co-op., Inc., Heppner,
Oreg.¹

Dec. 5:
Tillamook People's Utility Dist., Tillamook,
Oreg.⁴

Dec. 6:
Consumers Elec. Refrig. MC, Orleans, Ind.¹

Dec. 29:
The Smoky Hill ECA, Inc., Ellsworth,
Kans.¹
South Central Memb. Ass'n., Nelson, Nebr.¹
Rita Blanca Elec. Co-op., Inc., Dalhart,
Tex.¹

1946

Jan. 4:
The Central Nebraska Public Power and
Irrigation Dist., Hastings, Nebr.⁴

Jan. 5:
Northwest Kansas ECA, Inc., Bird City,
Kans.¹
Kiamichi Elec. Co-op., Inc., Wilburton,
Okla.¹
Cookson Hills Elec. Co-op., Inc., Stigler,
Okla.¹

Feb. 6:
Tri-County Elec. Co-op., Inc., Hooker, Okla.¹

Feb. 25:
Southwest PPD, Palisade, Nebr.⁴

Mar. 12:
Mor-Gran-Sou Elec. Co-op., Inc., Flasher,
N. Dak.¹

Mar. 13:
Glacier Elec. Co-op., Inc., Cut Bank, Mont.¹
Marias River Elec. Co-op., Inc., Shelby,
Mont.¹

Mar. 15:
Y-W Elec. Ass'n., Inc., Akron, Colo.¹

Mar. 20:
Webster Elec. Co-op., Marshfield, Mo.¹
Se-Ma-No Elec. Co-op., Inc., Mansfield, Mo.¹
Gascosage Elec. Co-op., Dixon, Mo.¹

Mar. 27:
Cavalier REC, Langdon, N. Dak.¹

Mar. 29:
KEM Elec. Co-op., Inc., Linton, N. Dak.¹

Apr. 5:
White River Elec. Ass'n., Inc., Meeker,
Colo.¹
Bon Homme-Yankton Elec. Ass'n., Inc.,
Tabor, S. Dak.¹

Apr. 8:
Hill County Elec. Co-op., Inc., Havre,
Mont.¹

Apr. 11:
Burke-Divide Elec. Co-op., Inc., Columbus,
N. Dak.¹

Apr. 16:
Fidelity Gas Co., Minneapolis, Minn.³

Apr. 23:
Loup Valleys Rural PPD, Ord, Nebr.⁴
McCook Elec. Co-op., Inc., Salem, S. Dak.¹

May 1:
Oliver-Mercer Elec. Co-op., Inc., Hazen, N.
Dak.¹
Kingsbury Elec. Co-op., Inc., De Smet, S.
Dak.¹

May 3:
Rio Grande Elec. Co-op., Inc., Brackettville,
Tex.¹

May 7:
Franklin County Rural PPD, Franklin,
Nebr.⁴

May 17:
Graham County Elec. Co-op., Inc., Pima,
Ariz.¹

May 23:
West Plains Elec. Co-op., Inc., Dickinson,
N. Dak.¹

May 24:
Coweta-Fayette EMC, Newnan, Ga.¹
Barry Elec. Co-op., Cassville, Mo.¹

May 31:
Mesa Elec. Co-op., Inc., Phelan, Calif.¹
Northwest Rural PPD, Hay Springs, Nebr.⁴

June 5:
Cam Wal Elec. Co-op., Inc., Selby, S. Dak.¹

June 14:
Navopache Elec. Co-op., Inc., Lakeside,
Ariz.¹

June 24:
Slope Elec. Co-op., Inc., New England, N.
Dak.¹
Capital Elec. Co-op., Inc., Bismarck, N.
Dak.¹
Tri-County Elec. Ass'n, Inc., Plankinton,
S. Dak.¹

June 25:
Niobrara Elec. Ass'n, Inc., Lusk, Wyo.¹

July 3:
Haynesville Elec. Refrig. Co-op., Inc.,
Haynesville, La.¹

July 24:
Clearwater-Polk Elec. Co-op., Inc., Bagley,
Minn.¹

July 31:
Rosebud Elec. Co-op., Inc., Gregory, S.
Dak.¹

Aug. 23:
Niobrara Valley EMC, O'Neill, Nebr.¹

Aug. 30:
PUD No. 1 of Mason County, Shelton,
Wash.⁴

Oct. 9:
Verde Elec. Co-op., Inc., Cottonwood, Ariz.¹

Oct. 18:
Douglas Elec. Co-op., Inc., Armour, S. Dak.¹

Oct. 21:
Eastern Oregon Elec. Co-op., Pendleton,
Oreg.¹

Oct. 22:
Tri-County Elec. Ass'n., Sundance, Wyo.¹
Sheridan Suburban Elec. Co., Sheridan,
Wyo.¹

Oct. 29:
Klamath River Elec. Co-op., Inc., Horn-
brook, Calif.¹
Lane-Scott Elec. Co-op., Inc., Dighton,
Kans.¹

Ree Elec. Co-op., Inc., Miller, S. Dak.¹

Dec. 31:
Central Iowa Power Co-op., Cedar Rapids,
Iowa¹

1947

Jan. 2:
PUD No. 1 Pend Oreille County, Newport,
Wash.⁴

Jan. 29:
Trico Elec. Co-op., Inc., Tucson, Ariz.¹

Apr. 1:
Central New Mexico Elec. Co-op., Inc.,
Mountainair, N. Mex.¹

Apr. 7:
Mohave Elec. Co-op., Inc., Kingman, Ariz.¹

Apr. 21:
K-B-R Rural PPD, Ainsworth, Nebr.⁴

May 2:
Arab Elcc. Co-op., Inc., Arab, Ala.¹

May 7:
FEM Elec. Ass'n, Inc., Ipswich, S. Dak.¹

May 9:
Charles Mix Elec. Ass'n, Inc., Lake Andes,
S. Dak.¹

May 26:
Homer Elec. Ass'n, Inc., Homer, Alaska.¹
Golden Valley Elec. Ass'n, Inc., Fairbanks,
Alaska¹
Glacier Highway Elec. Ass'n., Inc., Auke
Bay, Alaska¹

June 5:
Great Plains Elec. Co-op., Inc., Colby,
Kans.¹

Aug. 1:
Moreau-Grand Elec. Co-op., Inc., Timber
Lake, S. Dak.¹

Sept. 5:
Chesapeake Islands Elec. Co-op., Tangier
Va.¹

Nov. 1:
Southwestern Elec. Co-op., Inc., Clayton,
N. Mex.¹

Nov. 13:
Duncan Valley Elec. Co-op., Inc., Duncan,
Ariz.¹
Continental Divide Elec. Co-op., Inc.,
Grants, N. Mex.¹

See footnotes at end of listing.

Nov. 19:
Columbus Elec. Co-op., Inc., Deming, N.
Mex.¹

1948

Jan. 9:
Lacreek Elec. Ass'n, Inc., Martin, S. Dak.¹

Feb. 12:
Northeast Missouri Elec. Power Co-op., Pal-
myra, Mo.¹
Wheat Belt PPD, Sidney, Nebr.⁴

Mar. 26:
Lea County Elec. Co-op., Inc., Lovington,
N. Mex.¹

Mar. 30:
Loup River PPD, Columbus, Nebr.⁴

Apr. 9:
Tongue River Elec. Co-op, Inc., Ashland,
Mont.¹

Apr. 29:
Ohio Midland L & P Co., Canal Winchester,
Ohio³

May 17:
Southeast Elec. Co-op., Inc., Ekalaka,
Mont.¹

May 24:
M & A Elec. Power Co-op., Poplar Bluff,
Mo.¹

June 8:
Chugach Elec. Ass'n, Inc., Anchorage,
Alaska¹

Aug. 23:
K. C. Elec. Ass'n, Hugo, Colo.¹

Aug. 28:
City of New Prague, New Prague, Minn.²

Aug. 30:
City of Litchfield, Litchfield, Minn.²

Oct. 20:
Sacramento Municipal Utility Dist., Sacra-
mento, Calif.⁴

Dec. 16:
Tri-State Elec. Co-op., Inc., Copperhill,
Tenn.¹

Dec. 31:
Louisiana Rural Elec. Corp., Alexandria,
La.³

1949

Jan. 7:
Central Elec. Power Co-op., Inc., Cayce,
S.C.¹

Feb. 8:
Central Wisconsin Elec. Co-op., Iola, Wis.¹

Feb. 11:
Alcorn County EPA, Inc., Corinth, Miss.²

Mar. 2:
Dakotas Elec. Co-op., Inc., Bismarck, N.
Dak.¹

Apr. 7:
Swan's Island Elec. Co-op., Inc., Minturn,
Maine¹

Apr. 13:
Central ECA, Inc., Blunt, S. Dak.¹
Grand Elec. Co-op., Inc., Bison, S. Dak.¹
Cherry-Todd Elec. Co-op., Inc., Mission, S.
Dak.¹

Apr. 29:
Elmo ECA, Inc., Proctor, Mont.¹

May 16:
Wheatland Elec. Co-op., Inc., Scott City,
Kans.¹

May 26:
White Mountain Power Co., McRedith, N.H.⁵

June 8:
Wolverine Elec. Co-op., Inc., Big Rapids,
Mich.¹

June 29:
Tippah EPA, Ripley, Miss.¹

Sept. 20:
Columbia Power Co-op. Ass'n., Monument,
Oreg.¹
Johnson City Power Board, Johnson City,
Tenn.²

Sept. 30:
Lincoln Elec. Co-op., Inc., Eureka, Mont.¹

Oct. 6:
Northern Rio Arriba Elec. Co-op., Inc.,
Chama, N. Mex.¹
Jemez Mountains Elec. Co-op., Inc., Espa-
nola, N. Mex.¹

Nov. 21:
Central Elec. Power Co-op., Jefferson City,
Mo.¹

Dec. 14:
Northern Michigan Elec. Co-op., Inc.,
Boyer City, Mich.¹

Dec. 28:
Central Power Elec. Co-op., Inc., Minot,
N. Dak.¹

1950

Jan. 31:
N.W. Elec. Power Co-op., Inc., Cameron,
Mo.¹

Mar. 20:
Mountain Parks Elec. Inc., Granby, Colo.¹

May 8:
Salmon River Elec. Co-op., Inc., Challis,
Idaho¹

June 28:
Northcentral Mississippi EPA, Coldwater,
Miss.¹

June 30:
Molson-Chesaw Elec. Co-op., Inc., Molson,
Wash.¹

Oct. 27:
Lake Region Elec. Co-op., Inc., Wagoner,
Okla.¹

Nov. 16:
East River Elec. Power Co-op., Inc., Madi-
son, S. Dak.¹

Nov. 25:
Arkansas ECC, Ozark, Ark.¹

Dec. 2:
Midstate Elec. Co-op., Inc., Lapine, Oreg.¹

Dec. 18:
West Central Elec. Co-op., Inc., Murdo, S.
Dak.¹
Rushmore G & T Elec. Co-op., Inc., Rapid
City, S. Dak.¹

1951

Feb. 17:
Grayson RECC, Grayson, Ky.¹

1952

Jan. 28:
Plains Elec. G. & T. Co-op., Albuquerque,
N. Mex.¹

Feb. 28:
Puerto Rico Water Resources Authority,
San Juan, P.R.²

Apr. 1:
Anza Elec. Co-op., Anza, Calif.¹

Apr. 18:
Metlakatla Indian Community, Metlakatla,
Alaska²

June 30:
L & O Power Co-op., Rock Rapids, Iowa¹

July 9:
Northwest Iowa Power Co-op., Le Mars,
Iowa¹

1953

Mar. 16:
Lake Erie Elec. Co-op., Inc., Kelleys Island,
Ohio¹

June 23:
Arrowhead Elec. Co-op., Inc., Lutsen, Minn.¹

1954

Feb. 16:
Wellton-Mohawk Irrigation and Drainage
Dist., Wellton, Ariz.¹

1955

Apr. 27:
Arkansas Valley G & T, Inc., Pueblo, Colo.¹

May 25:
Colorado-Ute Elec. Ass'n., Inc., Montrose,
Colo.¹

June 29:
Desert Elec. Co-op., Inc., Twentynine
Palms, Calif.¹

Nov. 23:
Kotzebue Elec. Ass'n., Inc., Kotzebue,
Alaska¹

1956

Feb. 28:
Harney Elec. Co-op., Inc., Burns, Oreg.¹

May 14:
Tri-State G & T Ass'n., Inc., Denver, Colo.¹

1957

June 11:
City of Florence, Florence, Ala.²

July 31:
Copper Valley Elec. Ass'n., Inc., Glenn-
allen, Alaska¹

1958

Jan. 10:
Sunflower Elec. Co-op., Inc., Wakeeney,
Kans.¹

Oct. 30:
Nebraska Elec. G & T Co-op., Inc., West
Point, Nebr.¹

1959

Jan. 15:
White Mountain Power Co-op., Inc., Dyer,
Nev.¹

May 14:
Wells Rural Elec. Co., Wells, Nev.¹

July 31:
Naknek Elec. Ass'n., Inc., Naknek, Alaska¹

1960

Feb. 23:
Southern Ill. Power Co-op., Marion, Ill.¹

1961

Mar. 6:
City of Pella, Pella, Iowa⁴

May 12:
South Texas Elec. Co-op., Inc., Victoria,
Tex.¹

June 15:
The Hoosier Energy Division, Osgood, Ind.¹

Sept. 7:
Navajo Tribal Council, Window Rock, Ariz.¹

See footnotes at end of listing

Sept. 22:

Arizona Elec. Power Co-op., Inc., Benson, Ariz.¹

1962

Mar. 2:

Amargosa Valley Co-op., Inc., Las Vegas, Nev.¹

May 8:

Basin Elec. Power Co-op., Bismarck, N.Dak.¹

June 30:

Associated Elec. Co-op., Inc., Springfield, Mo.²

July 6:

Big Rivers Rural Elec. Co-op. Corp., Henderson, Ky.¹

July 19:

Prentiss County Elec. Power Ass'n., Booneville, Miss.¹

1963

Jan. 23:

The Lower Colo. River Authority, Austin, Tex.²

June 28:

Western Ill. Power Co-op., Inc., Jacksonville, Ill.¹

Oct. 28:

Electric District No. 2, Coolidge, Ariz.⁴

Nov. 14:

Truckee Public Utility Dist., Truckee, Calif.⁴

Dec. 5:

United Power Ass'n., Elk River, Minn.¹

1964

Feb. 3:

Fayetteville-Lincoln County Elec. System, Fayetteville, Tenn.²

June 30:

City of Okolona Elec. Dept., Okolona, Miss.²

Sept. 9:

Lincoln County Power Dist. No. 1, Pioche, Nev.⁴

Sept. 12:

Louisiana Elec. Co-op., Inc., New Roads, La.¹

Sept. 20:

Northern Minn. Power Ass'n., Grand Rapids, Minn.¹

Oct. 14:

Nushagak Elec. Co-op., Inc., Dillingham, Alaska¹

¹ Cooperative.

² Municipality or State agency.

³ Electric company.

⁴ Public power district or public utility district.

Paid-up REA Electric Borrowers

*Alcorn County Elec. Power Ass'n., Inc., Corinth, Miss.

Amana Society Service Co., Amana, Iowa

Arkansas P & L Co., Pine Bluff, Ark.

Ark-La Elec. Co-op., Inc., Bossier, La.

Beaver Valley Rural Elec. Ass'n., Beaver City, Utah

Board of Public Utilities, Paris, Tenn.

Bowie-Cass Refrig. Co-op., Inc., Douglasville, Tex.

Brazos Valley Refrig. Co-op., Bellville, Tex.

Camp Refrig. Co-op., Inc., Pittsburg, Tex.

Cap Rock Refrig. Co-op., Inc., Stanton, Tex.

Carroll County Board of Public Utilities, Huntingdon, Tenn.

Central Elec. Refrig. Co-op., Grove Hill, Ala.

Central Iowa Power Co., Des Moines, Iowa

Chelan County Elec. Co-op., Inc., Leavenworth, Wash.

City of Dayton, Dayton, Tenn.

City of Maquoketa, Maquoketa, Iowa

City of Milan, Milan, Tenn.

City of New Prague, New Prague, Minn.

City Power and Water Department, Sheffield, Ala.

City of Wilson, Wilson, N.C.

Claiborne Elec. Refrig. Co-op., Homer, La.

Collin County Refrig. Co-op., Inc., Wylie, Tex.

Community Cold Storage Ass'n., Inc., Camilla, Ga.

Consumers Elec. Refrig. Membership Corp., Orleans, Ind.

Crisp Farmers Co-op. Corp., Cordele, Ga.

*Delaware Rural Elec. Co-op., Inc., Delaware, Ohio

Earl W. Baker Utilities Co., Bethany, Okla.

Eastern Nebraska PPD, Syracuse, Nebr.

Edgefield Elec. Refrig. Co-op., Inc., Edgefield, S.C.

Electric Co-op. Refrig. Co., Inc., York, S.C.

Farmers Elec. Generating Co-op., Inc., Gilmer, Tex.

Farmers Elec. Refrig. Co-op., Inc., Emory, Tex.

Florida Power Corp., St. Petersburg, Fla.

Florida Public Service Co., St. Petersburg, Fla.

Free State Refrig. Co-op., Inc., Kenbridge, Va.

Georgia P & L Co., St. Petersburg, Fla.

Gladewater Elec. Refrig. Co-op., Inc., Gladewater, Tex.

*Gowrie Rural Elec. Co-op. Ass'n., Gowrie, Iowa

Haynesville Elec. Refrig. Co-op., Inc., Haynesville, La.

*Hendricks County REMC, Danville, Ind.

*Henry County REMC, New Castle, Ind.

Hill County Refrig. Co-op., Inc., Itasca, Tex.

Imperial Irrigation District, Imperial, Calif.

Johnson City Power Board, Johnson City, Tenn.

Johnson County Membership Corp., Raleigh, N.C.

Jordan Valley Elec. Co-op., Inc., Jordan Valley, Oreg.

Kentucky Rural Elec. Co., Louisville, Ky.

Klamath River Elec. Co-op., Inc., Hornbrook, Calif.

Knoxville Elec. Power & Water Board, Knoxville, Tenn.

Laurens Elec. Refrig. Co-op., Inc., Laurens, S.C.

Limestone Refrig. Co-op., Inc., Groesbeck, Tex.

Lometa Refrig. Co-op., Inc., Lometa, Tex.

Long Valley Power Co-op., Inc., Donnelly, Idaho

Louisiana Ice & Elec. Co., Inc., Alexandria, La.

Malheur Co-op. Elec. Ass'n., Vale, Oreg.

*Marshall-DeKalb Elec. Co-op., Boaz, Ala.

Mart Refrig. Co-op., Inc., Mart, Tex.

Mesa Elec. Co-op., Inc., Phelan, Calif.

Missouri Gen. Utilities Co., Rolla, Mo.

Mountain Refrig. Co-op., Hot Springs, Va.

Mt. Vernon Elec. Refrig. Co-op., Inc., Mt. Vernon, Mo.

Newport Elec. System, Newport, Tenn.

New York State Elec. & Gas Corp., Ithaca, N.Y.

*North Georgia EMC, Dalton, Ga.

Ohio-Midland L & P Co., Canal Winchester, Ohio

Old Capital Elec. Refrig. Membership Corp., Corydon, Ind.

Pamlico Ice & Light Co., Engelhard, N.C.

Powhatan Refrig. Co-op., Inc., Clayville, Va.

Public Service Co. of Indiana, Inc., Indianapolis, Ind.

PUD No. 1, Clallam County, Port Angeles, Wash.

PUD No. 1, Cowlitz County, Longview, Wash.

PUD No. 1, Lewis County, Chehalis, Wash.

PUD No. 2, Grant County, Ephrata, Wash.

San Carlos Irrig. & Drainage Dist., Coolidge, Ariz.

Sandy Elec. Co-op., Sandy, Oreg.

Shelby County Refrig. Co-op., Inc., Center, Tex.

Sheridan Suburban Elec. Co., Sheridan, Wyo.

Southside Refrig. Co-op., Inc., Crewe, Va.

State Rural Elec. Authority, Columbia, S.C.

Stevens County Elec. Co-op., Inc., Colville, Wash.

Stonewall Elec. Co., Trinidad, Colo.

Stonewall Elec. Co., Albuquerque, N. Mex.

Suburban Elec. Corp., Dunlap, Ill.

Taylor Refrig. Co-op., Inc., Merkel, Tex.

Tidewater Elec. Service Co., West Point, Va.

Tide Water Power Co., Wilmington, N.C.

Trenton Refrig. Co-op., Inc., Trenton, Tex.

Tri-County Refrig. Co-op., Inc., Eddy, Tex.

Tri-County Rural Elec. Co., Inc., Freehold, N.J.

Tri-County REMC, Poland, Ind.

Union Elec. Refrig. Co-op., Inc., Farmerville, La.

*United REC, Inc., Kenton, Ohio

Upshur Elec. Refrig. Co-op., Inc., Gilmer, Tex.

Utility Services Co., Hoisington, Kans.

Valley Mills Refrig. Co-op., Inc., Valley Mills, Tex.

Verde Elec. Co-op., Inc., Cottonwood, Ariz.

Village of Bangor, Bangor, Wis.

Virgin Islands Co., Christiansted, St. Croix, Virgin Islands

Weakley County Munic. Elec. System, Martin, Tenn.

*Borrowers that have repaid their REA loans in full from revenues.



